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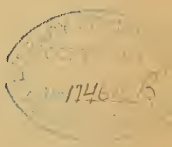
WHICH?

WHEN AND HOW;

OR,

A COLLECTION OF THE MORE RECENT FACTS AND IDEAS UPON RAISING HEALTHY CHILDREN.



BY

DAN NEWCOMB, M.D.

"AN OUNCE OF PREVENTION IS BETTER THAN A POUND OF CURE."

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TO

N. S. DAVIS, A.M., M.D.,

THE SCHOLAR, PHILANTHROPIST, AND PHYSICIAN,

THIS BOOK IS

RESPECTFULLY DEDICATED,

BY

THE AUTHOR.

PREFACE.

Believing that there is not as much thought, study, and care spent upon "the knowing how" to raise healthy children as there should be — that children are what they are more by accident than from any reasoning, so far as it concerns anything that human knowledge can effect; and believing that this ought not to be thus — need not be thus; and believing further, that "child-raising" is far more important than "stock-raising," though — judging from the efforts in that direction — it is not so considered; and knowing of no work written for the unscientific reader that gives the advanced ideas of Hygiene and Physiology as applied to the "ways and means" of obtaining healthy children: we have attempted to give, in terms and language adapted to popular reading, the latest well-founded knowledge in this direction.

If we have succeeded in our undertaking sufficiently to call the attention of parents to the importance of

raising healthy children or raising none, we shall feel that our effort has accomplished a good and a great mission.

We have tried to teach that Nature has laws, and that if we would work in harmony with these laws, we must try to interpret the teachings that come to us instinctively, and then follow all the lessons of the infinite Creator as above the teachings of the finite creature.

The general reader we would ask to read, and think this subject over, as of value to him and his descendants; and to help his neighbor to the same "Hows;" that as many children — who come into this life without being consulted — as possible, may come healthy, and then be raised in health.

The scientific reader we would ask to be charitable, and to lend a helping hand to roll away the stone of physical ignorance that is crushing the health — yes, the life — from many a "man in embryo;" and to educate the people above uniting those diseased elements that must entail disease upon their innocent child.

AUTHOR.

July, 1871.

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WHEN AND HOW.

CHAPTER I.

Physiological and Hygienic Knowledge.

CHILDREN ORIGINATED LONG BEFORE BIRTH.

ALTHOUGH children are usually considered the beginning of men and women, yet a little thought will show us that they have an origin exceedingly more minute — that reaches much farther back than to birth.

Dr. Holmes says: "There are people who think that everything may be done, if the doer, be he educator or physician, be only called in season. No doubt — but *in season* would often be a hundred or two years before the child was born; and people never send so early as that." "A hundred or two years" does not reach far

enough back to include all "the doers" who have had a part in making the people what they now are. In the children of to-day we can see and trace the results of what these "doers" —called long enough ago—have been doing.

Though these children are not the beginning of men and women, they are "a drive" on the route from primeval existence to—no end. They are an embryotic nation, that are for a few years to fill our places after we pass away, and then in their turn are to step off the threshold of time, to be replaced by a people yet in the loins of their ancestry. And so on we go; children coming on at every stage of the route—some reaching the point of birth, others stopped on the way, and only about one-half who are started on the infancy "drive" reaching the mature life.

EARLY MORTALITY AND IGNORANCE.

And why this stopping by the way? Why this falling out of the path, when a life that is to be immortal is once called into existence? Why this cutting short the distance by "going 'cross lots" from earth to the "spirit land," instead of traveling round the road of life *via*

four-score years? One-fourth of the infants born die before they pass the infant age; and it is more than probable that many less than one-half the embryos ever mature to an infant life.

But we do not now propose to speak of the blighted ovum or of the diseased infant, but only of the healthy, and how to keep them so. In answer to some of these questions we would say: the great reason for the early mortality of so many children lies in our ignorance, and because we have not learned from the book of Hygiene the laws of health-keeping.

SANITARY LAWS ARE GOOD.

There are sanitary laws, or principles, that will assist us in keeping our health good; that will guide us in generating healthy children; that will help us to rear these children as strong and vigorous beings, both in mind and body. But these laws will do us no good until we know them; nor should we spend our time and thoughts in trying to learn them unless we think them knowable, and then believe them useful, and such as we can apply to our every-day life.

Many of our best minds of our strongest

thinkers, have, through all the past ages, been engaged in discovering and applying these laws of health; and a large number of facts have been accumulated, which have been proven, by practical applications, very beneficial and valuable in continuing good health.

We do not say that these rules, followed never so closely, will remove all disease, sickness, and pain from the world; but we do believe that if we would study Hygiene and Physiology, as we now study Arithmetic and Grammar in our common schools, and then make a thorough application of their teachings at our homes in our every-day life, sickness, except from contagion, would be very rare.

A "PICTURED" CASE.

Let us picture a case: Take a man and woman — a husband and wife — who are undoubtedly healthy and strong, and whose ancestry far back have been the same; who have only been diseased from what may be classed as accidents — these leaving no constitutional imprint; who have been regular in their habits of life in every particular; who have had pure air, good food, and warm clothing; who have

kept clean, and have slept enough and not too much; who have been regular in their habits of diet, and in all their bodily functions; who have not been unduly given to indulgence of the passions — especially the sexual passion; who have not been idlers, either mentally or physically, but have labored every day with due diligence. Let such a woman become pregnant by such a man, and still keep her steady, even way of living; and in due time a son is born unto them. Such a child is as sure to be a well child as it is to be born. Now, with this healthy starting, what will make him sickly? He will undoubtedly suffer from the usual contagious diseases — as the measles, chicken pox, and scarlatina; but if he is nursed and cared for by his own mother, so that no law of Hygiene is broken, he is as sure to be healthy and strong as the calf or lamb is.

PARENTS SHOULD UNDERSTAND THESE THINGS, OR STOP HAVING CHILDREN.

Very justly you may say that such a parentage is rare. Granted; but if this be the fact, so much greater is the reason for studying and living up to health-preserving rules. If we can-

not do this we should stop being fathers and mothers, should cease to be a means of introducing disease and death — premature death — in a form where it affects the nearest and dearest of life's ties. Are we, as an American people, doing right in thus neglecting these studies? — who are so active and ambitious, and expect so much of our sons and daughters?

THE PROVIDENCE OF GOD.

It is not from a disposition to neglect their children that many do not study the laws of parentage, but from a feeling that it is just as well without — that these studies will not improve the matter. Or perhaps it is from a feeling that these afflictions of life are "providential," and are sent for their good.

But let us no more impute these evils to a "Wise Providence," for we cannot believe that God is in any way connected with causing sickness in the innocent child, or that Nature is responsible for the hereditary taint of infirmity that our children receive.

We are continually breaking some of the known, or knowable, laws of health and of Nature, and the effect of these breaches becomes

an acquired constitutional infirmity in us; and our child, begotten while we were under this constitutional effect, shows a predisposition to develop the same weakness.

Who is to blame — the Supreme Being who made the laws of health, or the parent who broke them by not living well or by living viciously; who thus not only suffered himself, but was the cause of suffering to the child through life? Nature did not do this — the parent did it.

OUR ERRORS NOT ALL OURS IN RESULTS.

From this view we see that we, as parents, are in a very responsible place; our errors are not ours alone in effects, but are ours and our children's after us, until, unless corrected, our family becomes extinct.

Now, we claim that most of the physical weaknesses of life might be eradicated in a few generations, if we, as parents, would act up to the knowledge possessed by medical science, and which might be shared by us, upon the subject of procreating and rearing children. The masses of the people — who are the most fruitful — do not see the necessity of, or the ben-

efits to be derived from, the study of Hygiene and Physiology; and physicians commit a grave error when they fail to show parents what course will inevitably cause sickly issue, and what other course will give them healthy children. We believe it to be very wrong, that all the knowledge that has been obtained upon this most important subject should remain in the possession of a few, leaving each generation to come up no wiser or stronger than preceding ones.

TEACH HYGIENE IN SCHOOLS AND AT HOME.

That we may take advantage of what knowledge has been obtained, we must introduce the study of Hygiene into our schools and our homes; we must study it ourselves, and teach it to our children. We must cease to feel any false modesty in taking up these different subjects, and looking at them in their true light — in the light that will show us the facts, and explain them to us and to our children.

VERY FEW TRULY HEALTHY.

Look around among your acquaintances and count the number who are truly healthy. It

will not take you long, unless you are in a healthier community than is generally found. Perhaps you may meet one or two who have lived to a good old age, and have lived in health all their lives, and who now seem to be dying more of old age than from disease. But against these we can balance a hundred in every community who are sickly during life — full of aches and pains, or that have died before their natural time from disease.

One person can hardly be found who has not, in the course of his life, brought upon himself acute or chronic illness, that a little knowledge, which would have led to proper cure, would have saved.

PRACTICAL ILLUSTRATIONS.

Here we see a disease of the heart, which was caused by an exposure that gave rheumatism. There we see a case of weak eyes, brought on by over-use. Over yonder we find a lameness that will last a lifetime, induced by using an inflamed joint — even in spite of the warning pain — that with rest might have been good now. In that tidy little cottage you can see a poor, deformed being, weak in mind as

well as body, whose infirmities were inherited from a father and mother who were strongly tainted with scrofula.

HAD THEY ONLY KNOWN.

Had those parents known what they might have known, they would never have had that mental and physical deformity to trouble their minds. Had they known that the disease that they labored under was liable to be doubled in its force in the child — had they known that Rickets were quite likely to trouble the children of parents who were both scrofulous — they would not have married each other; but each would have married one who was full of physical vigor. Or if they had known how to prevent conception, they could have saved this blighted life that they have been the cause of not only being, but of being diseased. Thus a little Hygienic knowledge would save children from being born to disease, by preventing the union of parties who could not procreate healthy children; or by preventing conception from following the union. These are proofs that if we only knew we would do better; hence arguments in favor of knowing. We

take these examples to show how we are daily suffering, and causing our children to suffer, by what we do, both before and after birth.

SORROW PRODUCED BY DISEASE.

We would not speak of the pain, weariness, gloom, and waste of money that are sure to follow in the path of disease; but we would call attention to how much time is lost from the discharge of duties, and how irritable it makes the tempers of both parents and child.

A VIGOROUS FAMILY TREE.

Is it not plain, that if we bring our children up healthy in body and mind, we shall thus be the means of not only giving them a happier life, but of preventing the entailment of any constitutional tendency to disease upon *their* children? for we have laid a foundation for a strong, vigorous family tree, whose roots have started from our loins.

NO ENJOYMENT WITHOUT HEALTH.

Without health and energy, all the pursuits of life—the necessary labor, the parental and social relations, and every other aim of life—

are obstructed or become impossible. And should not a knowledge that will remove these hindrances be of importance enough to merit a thought or two, if it is not of sufficient worth to be taught in our common schools?

THE LANGUAGE OF NATURE.

Perhaps it may be said that Nature has insured a conformity to our well-being, by giving us various physical sensations and diseases —such as pain from over-doing and from injuries, hunger from want of food, and thirst to supply water. It is very fortunate for us that we do have pain to admonish us of danger; and that heat, cold, hunger, and thirst produce promptings that cannot be easily forgotton or refused; and if we would always obey these promptings of Nature, and all others of like kind, many less evils would arise. If we would always rest when the body or mind is tired— if we would always get pure air when oppressed with its closeness—if we would never eat except when hunger calls, and always eat when it does—if we would only and always obey the demands of thirst, and if we would always obey the teachings of Nature in the

exercise of our passions — we should rarely have to say "I am sick."

But in many instances there is so great an ignorance or indifference to these plain laws of Nature, that we do not realize that disobedience to them is freighted with evil consequences — that men and women, fathers and mothers, who have assumed the care of an opening life, do not realize that these sensations are Nature's language to us, telling us what is for our good; and that when they have not been made morbid by long disobedience they are very trustworthy guides.

Though Nature has given us rules in the form of sensations, lack of knowledge has made them often useless; and we throw down the gauntlet by misdoing. Here we see that a knowledge of Nature's language will lead us to a direct care of ourselves and our children, and prevent great loss of health and often of life. We do not suppose that a knowledge, ever so profound, will immediately save us from all disease — as the constitutional cachexy will be entailed upon the child until it is corrected by living in accordance with Nature's laws, or until the family has become extinct by ceasing to have issue.

HEALTH THE KEYSTONE OF PHILANTHROPY.

The largest elements of happiness in this world are found in sound, robust health; and no matter what prospective or present blessings we may have, unless we are well — sound in body and in mind — we cannot appreciate or enjoy them. Thus, lessons that teach us how to preserve health in ourselves and our children are worth more to us, so far as our real happiness and enjoyment are concerned — not to speak of pecuniary profit — than any other whatever.

Therefore we claim that books, teachings, and lectures, that instruct how to preserve health, are at the bottom of all earthly happiness — are the keystone of true, active philanthropy; and every parent, or prospective parent, should learn these lessons, as of more value to them than any other lessons that may be taught.

When we, as parents, truly understand this fact in the light of scientific truth, and then make a practical application of our wisdom to the procreation and rearing of our children, we shall begin to have a healthy people; and we shall not as often call for a cure as we shall call for instruction to prevent disease.

AN ASTONISHING FACT.

It is truly an astonishing fact, that though upon the treatment of children after birth, and upon their parentage, depend their health and life — whether good and sound, long or short — as, also, their moral welfare or ruin; yet nothing is taught that has a bearing upon these points of child-rearing to the fruitful masses. They are neglected, though they are peopling the world. While we are ever giving lesson upon lesson in the art of providing *for* self, it is very strange that we never give them lessons upon the art of *preserving* self.

This is all left to chance — the blind goddess who often leads to ruin.

GUIDES TO RAISING CHILDREN.

Fancy, impulse, unreasoning custom, joined with the suggestions of ignorant nurses — who usually are "old maids," not practically learned — and the interested council of grandmothers, are the guides to raising a child, to developing a human life. That Nature has a law for the ova, fœtus, infant, and child, is never once thought of, much less ever learned and followed.

We would think that man a fool, who — knowing nothing of farming — should buy a farm and attempt to work it with no one to help him who was used to its labors and versed in its arts; we would think that man a knave who should attempt to practice medicine and surgery, having never studied the art; and, above all things, we would pity his patients. But we can see parents, every day of our lives, assume the resonsibility of giving a life to a child — their child — and attempt the task of rearing it, without having given a thought to the principles — physical, moral, or mental — that Nature has given them as a guide; and we do not even show surprise at such parents, or pity their children.

HOW GIRLS ARE EDUCATED FOR MATERNITY.

The young mother a few months ago was at school, where she was crowded with words, facts, and dates, of no practical value to her as a mother; in fact her teachings and lessons were just those that would teach anything but the duties she was soon to assume. She has never been taught to think for herself, to reflect, to reason; and thus she has not the mental

culture that would help her in such a trying ordeal as that in which maternity places a woman; her discipline did not in the least prepare her for thinking of ways and means of her own.

Music, French, fancy work, novel reading, party-going, and beau-catching, were the aims of her life previous to marriage; and almost no solid mental culture has she obtained to enable her to fulfill the responsible position of giving and nurturing a life.

A LIFE "ALL HER OWN" TO CARE FOR.

After — and frequently too shortly after — she has a human life "all her own" — hers and her husband's — intrusted to their care, and their tender mercies.

How much does she know of how she should raise it, that it may bloom in sound, healthy beauty? She probably does know that it should nurse; but how soon, or how often? Some nurse tells her — who has never heard of but one way and rule — which is "just as you happen to," or when the lusty cry will not be stopped without it; but she is not told that regularity is the first law of an infant's health.

She probably knows that cleanliness is good, or the same old nurse has told her so; and from indolence or thoughtlessness it is washed in cold water, applied to a skin that never knew a chill of any kind.

CALLING THE DOCTOR.

Anon, the doctor is sent for because the baby sleeps all the time; or because it has a colic — "as it would starve if it were not fed," and an indigestible compound was the first food the little to-be-pitied one received into its stomach. All practicing physicians have seen many cases even more extreme than these; all because the "mother did not know."

As the child grows older, it is underfed — for the weak, feeble mother cannot supply its wants; and in another month or two we find its limbs left without dress — red from cold; and soon this child is sick in earnest, and then, perhaps, the mother does not know it.

WHAT PARENTS WILL DO, THEN WONDER.

Parents will doom their children to live upon a monotonous diet, and wonder that they are weak and enervated — that their energy is

diminished. They will clothe their children in short dresses, leaving their legs, arms, and necks naked, and wonder that they are stunted in growth, or deficient in power, or that their maturity is not vigorous — that their whole life is one of illness. They will keep their children indoors, and then wonder that they are not strong and able to endure outdoor air — wonder that they "catch cold" every time they chance to steal out.

IT WAS "SO ORDERED."

When children are not strong and robust, the cause is not sought out; but it is considered to be "so ordered," or providential, and passed by as a misfortune. We think it is a misfortune, but one from a far different cause. It is "so ordered," that if a child is not fed, clothed, and aired in a sufficient manner, he should be puny; but the fact of his being so treated is far from providential. So much so that God will hold all parents responsible for the physical no less than the moral training of their children. All parents are responsible for the health of their issue.

WE HAVE NO RIGHT TO ENTAIL DISEASE.

If they have entailed disease upon their offspring, they have wronged the innocent, who have had no voice in being brought into this world, and certainly should not be here to suffer; and no person has any moral right to become a parent who cannot show a health record that will not entail disease upon his child.

A father who has been the means of a life, is in double duty bound to do all in the power of man to make that life a healthy one physically; for physical health is the basis of all moral strength and intellectual success.

MORAL TRAINING.

In passing from the physical teachings to the moral, we find as great a chance for improvement. Most parents know nothing of the emotional nature — how it unfolds — and thus are not prepared to teach them on this and other moral topics; and the child is left to "come up." They have an impression that the child is bad by nature; some thinking it "totally depraved," others that some of the feelings are

wholly bad, while still others think that some of the feelings are wholly good; all of which ideas will lead to a bad education of the child's moral powers.

While they are ignorant of the moral status of the child, they are equally at fault as to the effect of any particular kind of moral instruction; and their interference is often a great injury. The child is often worse in moral tendencies than he would have been had he been left entirely to himself. An action quite good in itself, and beneficial to the child, is thwarted by the parent, whose temper, as well as the child's, is made worse.

Deeds and actions that are thought desirable, are performed under threats, bribes, or the hope of getting applause; the parent never thinking of the moral motive of the child. A child under such influences becomes fearful, selfish, or a hypocrite.

TEACHING TRUTH AND EXAMPLES OF UNTRUTH.

While teaching the child to be truthful in all things, parents are constantly setting examples of untruth, in threatening what they do not execute, and what the child soon comes to

know will not be executed. Teaching self-control to the child, they enforce their teachings with angry scoldings; and for acts of the child that ought not to be noticed, except in the kindest way.

Incapable of self-government — incapable of controlling the course of their own mental and moral life — we cannot expect them to direct others aright.

THE INTELLECT WRONGLY UNFOLDED.

We find the intellect of children often wrongly unfolded. They are supplied with primmers as soon as they can talk, and the idea that from books, and only from books, comes knowledge, is instilled into their minds; and thus children learn mechanically what others have learned before, and are not trained to the use of their own minds. In fact, their brains become a storehouse for other people's ideas, instead of a manufactory of their own. Their minds are crammed, from the first dawn of consciousness, with a course of teaching that makes them dependent upon others — that makes them look to other brains than their own.

WE WANT AN INDEPENDENCE OF THOUGHT.

When they become men and women they have not that independence of thought that will take what it has acquired of knowledge and facts, and then, by their own intellection, draw conclusions and put them into practical operation. If they chance to form a conclusion they find it necessary to be supported by some other person, or by some book, having never learned to "*know* that they know." Their teachings lead them to lean on anything but self. We want less book-knowledge and more thinking for self — more self-reliance — more teaching our children that *they* can do for themselves, from their own resources and their own internal powers of intellection; that their thoughts are as good as anybody's. The native, inherent, or spontaneous education will always be neglected so long as parents fail to use their mental powers; especially in studying how to make the most of their children.

ANSWER THE CHILD'S QUESTIONS.

There is that in the infant that will educate its own mind, if we will but answer its ques-

tions. The restless observation of the child is seeing and hearing everything around it; and instead of being checked, by telling it "not to ask so many questions," it should be encouraged by a diligent help, until all the powers of the perception are fully developed — until all it sees and hears is seen and heard as quickly and understood as well and remembered as surely as is possible. Then the child is ready to take books, and learn what others have worked out; only depending upon books as helps.

But we would be straying from our field of good, healthy children, if intellect and morals were not necessarily included with the physical elements in sound health.

FARMERS UNDERSTAND STOCK-BREEDING.

When we visit any one of our farmers, be they large or small cultivators or stock-raisers, what will we hear as the foremost conversation? The weather and its effects upon the crops and upon the stock — sheep, cows, and colts. They will tell us how much pains they have taken to get this stock to cross with their old stock — this kind of sheep to cross with their old sheep — and this kind of hogs to improve their

swine. They will tell us all about their seed-wheat, their seed-oats, their seed-potatoes, and their seed-peas and beans; how this is the best seed, and will give the largest crop of the best quality of grain. They will tell us how to cross swine, so as to get the greatest *deside ratum* in the hog. They will tell us how to breed so as to get good beeves, good milkers, and good work-oxen. They know all the necessary steps to get fine-woolled sheep, or those that will make good mutton; and we cannot ask a question on the raising of colts as farm horses, coach horses, or roadsters, but they will answer, and tell us correctly all the steps to obtain such or such stock. They will point out horses and say, a cross there will give you some "two-forty steppers," and that such another cross will give some good farm horses. They will spend money and go far to get the best blooded stock into their stalls, and are rarely deceived into getting a different colt than they wanted. They will tell us that such a foal will not make a valuable horse, and that such another one will make a valuable animal.

How are they thus well posted? By observation, study, and thought; and then by each

man comparing his ideas with his neighbor's. It is but in part by book-knowledge, though we find they read works on stock-raising.

THE MECHANIC AND LABORER UNDERSTAND IT.

If we visit the professional man or the mechanic, we will find them as well posted. The daily laboring mechanic will tell you all about the breed of his hog — why it is, or why it is not, the best; and hence he knows how to obtain the best. Ask him of his hens, and you will find he knows from what blood come those best for the table; how the "top-nots" were originated, and when and where the "Shanghai" will cross to the best advantage. They will tell us that if we plant two kinds of corn near each other, or sow two kinds of oats in a near field, they will "mix," and that the cross will improve or deteriorate the quality of the grain, as the case may be. They know that strawberries will "mix," and become more thrifty bearers, and whether they will be larger or smaller. They know that such a cross is an improvement, and that another one is not a profitable one. These things they have observed and read, so they are well posted. Now, what has caused

them to become thus well posted upon these points?

The answer comes that their interest has led them to strive for the best — that where men's dollars and cents are, there their thoughts are.

THEY UNDERSTAND THE QUALITIES OF FOOD.

They all know the quality of each article of food given their stock. They all know that one kind fattens, and another grows, and another gives activity. The economy of all varieties of food are understood and practiced. Having a hog to fatten, they know how to feed it; or wishing him to grow, they know how to change the food to meet the want. They know how frequently it is economy to have an increase of young animals; and are sure to restrain this frequency within healthy bounds.

BUT DO NOT KNOW HOW TO PROCREATE HEALTHY CHILDREN.

But how is it in regard to raising children? Do these farmers, mechanics, and professional men know how to raise a healthy child? Do they here understand the effect of "mixing" and "crossing"?

MAN SEEKING A WIFE.

It is very rare that a man, seeking a wife, considers the question of the ability of the woman sought to be a healthy mother — to give birth to healthy children. It is very rarely that the question of entailment of physical strength and soundness of mental power is thought of as concerning our children, when we are selecting a life partner — one to be the mother or father of our boys and girls.

WOMAN SOUGHT TO BECOME A WIFE.

It is very rare that a woman ever thinks or asks herself or another, if this man, who has solicited her to become his wife, is sound in a physical sense; if he has none of those taints of constitution that will leave their stamp upon her children; if he has none of those acquired physical or mental habits that will be surely entailed upon his offspring to their disadvantage. In short, the question is not considered, whether this is a judicious crossing for the coming generation.

A VERY STRANGE COMMENTARY.

What a strange commentary it is, that we, as a people, should be well versed upon all points touching the raising of a colt, that we should take every advantage to raise good ones, and yet never spend any time or thought upon the raising of a child; that we will marry a wife or husband from any motives of policy, such as standing — social or political — money, or even love itself, without considering the results of the union upon the coming human beings, when those beings are to be our children. We vie with each other in striving to raise the best calves, lambs, pigs, and colts; and are careless of learning how to raise unto ourselves strong, robust, healthy children.

MAN, FOR SUCCESS, MUST BE A GOOD ANIMAL.

An author says that "the first requisite of success in this life is to be a good animal;" and to be a nation of good animals is the first condition of national prosperity.

The results of war, commerce, and agriculture are turned upon it, as well as the mental worth

of a people; for no animal can do, that has no physical stamina as a basis.

CHILDREN MUST BE CONSIDERED IN THE MARRIAGE CONTRACT.

If we would progress as a nation, it is necessary that we take into consideration more fully, not only the training of our children, but consider in every marriage the question of adaptability, each to the other, in reference to the issue of the marriage; that we should learn to love such, and such only, as have a constitutional worth — a bodily power that will best mingle with our own in our children, to give a powerful physical ability — learn to love such second only to the love for those children, and that first love we owe the Great Law-giver; and not be led by passion, blindfold, over the precipice of what will be blighted hope, by giving form to sickly, wasting issue, who are such as they are because their father and mother did not know themselves as well as they knew the cattle in their fields; or if they did know, did not act upon that knowledge.

Happily for our great American people, happily for parents, and, above all, happily for the

coming generation, these ideas are beginning to attract attention.

PHYSICAL DEGENERATION MUST STOP.

There is a growing opinion that our physical degeneration must find a stopping place; that we must act with the same care in rearing children that we exercise in raising our domestic animals; and if we will use the same diligence in learning how to entail health, and how to guard against the development of hereditary tendencies to disease, that is used in the stables of our farmers, we shall soon have much less use for doctors — many less short graves — fewer Rachels weeping for their children because they are not, and far less sorrow among the little ones.

RAISING CHILDREN MORE IMPORTANT THAN STOCK-RAISING.

We would not teach that it is of no importance to know how to raise, feed, and train our domestic animals, but that it is time the benefits they receive should be given to our children. We believe that the raising of thoroughly and soundly grown men and women is of vastly

more importance than the raising of calves and pigs; and that the teachings pointed out by theory, and afterwards proven by practice, ought to apply to their well-being in all things.

THE SAME LAWS APPLY TO BOTH.

Spencer says: "But the fact is not to be disputed, and to which we had best reconcile ourselves, that man is subject to the same organic laws as inferior animals. No anatomist, no physiologist, no chemist, will for a moment hesitate to assert that the general principles that rule over the vital processes in animals equally rule over the vital processes in man."

Thus the facts learned of animals have a practical value in the rearing of children.

Do you know how to procreate a large, healthy, active colt? Use the same rules, and you will have the same result in the child. Do you know what "cross" you should avoid in raising neat cattle? Avoid the same when you look for that "other parent" for your children.

THINK BEFORE YOU GO "A COURTING."

Do you know, when you have a kind of stock deficient in any one point, how to fill that defi-

ciency? Just remember that principle when you go "a courting."

As we love our chidren, and value them more than we do our domestic animals; as we find them entwined around our hearts, and centered in our inmost lives; as we are wrapped up in them and their success, both in this life and in the "life which is to come," so should we be interested in anything that shall teach us how to make those we now have grow stronger, and withstand the hereditary tendencies they have received from us — that shall teach us how to avoid the entailment of these tendencies upon others.

AVOIDING HEREDITARY TENDENCIES.

By understanding the law of heritage, that "like begets like," we may avoid most of these evils.

1*st.* If healthy ourselves, by not marrying any one unsound in body or mind.

2*d.* By selecting a partner who is sound, and has more than an average of strength where we are weak, or have a tendency to weakness.

3*d.* By training and bringing up our children

fully in accordance with the laws of health, from early infancy to full maturity.

4th. By giving very especial care to that period of life when a development of the disease inherited was shown in the parent.

As an example, take a case of inherited consumption. This disease usually lies dormant in the body until about the period of puberty, or soon after. To prevent a child who has inherited it from developing it, he should be clothed very warm, and wear flannel next to the skin; he should have all the pure, fresh air he can use, and taught to inhale all he can at each inspiration; he should have a diet composed largely of animal food; he should keep the secretions regular, and should not over-exercise — though this is far less injurious than indoor quiet. Outdoor exercise, with a regularity and a steadiness in all the habits of life, will, with the above described care, in almost every case, prevent the disease from showing any activity — from being developed.

A STORY OF GALEN'S PRESCRIPTION.

To illustrate what may be done in the procreating of children, we quote the following

story of the celebrated Galen: "A Roman magistrate, little, ugly, and hunchbacked, had by his wife a child exactly resembling the statue of Æsop. Frightened at the sight of this little monster, and fearful of becoming the father of a posterity so deformed, he went to consult Galen, the most distinguished physician of his time, who counseled him to place three statues of love around the conjugal bed, one at the foot and the other two on each side, in order that the eyes of his young spouse might be constantly feasted on these charming figures. The magistrate followed strictly the advise of the physician, and it is recorded that his wife bore him a child surpassing in beauty all his hopes."

THE "HARDENING" PROCESS.

Some parents think if they clothe their children scantily — let them run without shoes and with legs all bare, neck and arms exposed to all kinds of weather — they will "harden" them; and they will refer you to those who do so now, and say, "they will endure very much more than the child who is warmly dressed." They do not consider that it is only the toughest that can bear this treatment; that the parents who thus

care for their little ones destroy all the weak ones, as they cannot survive such "hardening;" they do not consider that only the strong, robust, and healthy by nature live under such treatment for any length of time, nor do they think that when born with such constitutions they might be still larger and stronger if properly cared for.

But properly caring for them does not include shutting them up in the house, in a close room, with impure air to breathe. Such a care is the worst kind, and is a cause of a very large percentage of our weak children. Keep their skins clean and sweet by frequent ablutions, clothe them warm, with flannel next their skin, with frequent changes, and then let them out in the pure out-door air, and teach them to breathe all they can. If people — if parents, present and prospective — would read and think more upon the rearing of healthy children, we should soon see a new development of health, and should not so often hear it said, "I am sick."

CHAPTER II.

Like Begets Like.

WHAT A CHILD RECEIVES PRIOR TO BIRTH.

AT birth a child has received all it ever will from its ancestry to make it what it will be, except what it receives in nutrition from its mother, and what it receives from father and mother in the form of instruction, both by precept and example. What it has thus received is but the result of those influences which for years have been at work to determine the future welfare of the issue of those persons through whom the influences worked — influences that have been operating upon and through the ancestry of the child for years — yes, ages — prior to the union of those two elements that resulted in the creation of a new being.

WHAT HEREDITARY INFLUENCES DETERMINE.

These influences, operating so far back upon the ancestry, produce in the issue what we call "inheritance" — influences that have been at work to determine the personal, physical, mental, and moral future of the child; to determine whether it shall be one of calm, enduring content, of fiery contest, or of base yielding to the temptations of life; whether it shall be one of sound health, of strong, powerful physique, or of disease and debility; whether it shall have a giant intellect, able to solve and compute the abstruse thoughts of science, or whether it will need a guiding hand to help it through this life. If they determine so much in this life, may we not ask: Will they not have some small weight in determining the child's status in the "spirit world"? These influences are made up of a multitude of unknown and, in some instances, unknowable quantities of inextricably complicated functions, which will admit of no certain solution in any single case, yet offering very valuable thoughts as to the grand result.

PROCREATIONS BEAR ANCESTRAL IMPRESSIONS.

Every procreation in this world bears an impress of some kind of an ancestral speciality, be it of vegetable or animal life. We may not be able to see it, or even to comprehend it on its first emergence into life, for many peculiarities lay dormant through infancy, and are only shown in middle or mature life. This law of entailment, often of destructive tendency, sometimes seems to be very arbitrary; and in other instances it may be obviated, or at least modified. Sometimes by great care a child may be saved from these evil tendencies; at other times — as when it assails the brain, the instrument of the mind — it so effects the reason that they go without the guide and chart of intelligence, onward, by self-destruction, to the unexplored sea of a future life.

ACQUIRED MORBID CONDITIONS ENTAILED.

All acquired morbid conditions or diseases, or all those that arise in consequence of our own individual conduct, are as likely to be inherited as are those which descend from ancestral sources; such, for instance, as the habits of smoking and

dram drinking. That children inherit the physical constitution of their parents, its vices and its morbid tendencies, as well as its good qualities, has been observed from remote antiquity; and the law which governs this entailment has been studied by the savant for all these ages, to be understood only in part at the present time.

CHILDREN "TAKE AFTER" BOTH PARENTS.

Children do not at first sight always resemble the parents, as they have not inherited every point of characteristic that the parents had; and there must be two parents commingled in the child, which crossing will effectually prevent a perfect resemblance to either parent. They must partake of some of the points of both; and this double ancestry forcibly acts to diminish any one particularity of either parent, in its effects upon the child; one prominent attribute of the mind or body of one parent being counterbalanced by an opposing element obtained from the other. Thus we have the tendency that makes a variation. But when we have two prominent points, one in either parent, of similar kind, we expect to see it reproduced in prominence in the child.

TRANSMISSION.

If we had always an invariable transmission, the people now living would be but a faithful duplicate of those of the past, and would have been no improvement upon them; nor would we expect the future generations to be an improvement upon us of the present. The external relations — the home, the climate, habits, and education — all tend to prevent a perfect hereditary transmission. The hygienic treatment the parents have received will greatly influence the entailment of any morbid tendency; as will the state of the health, vigor, and force of both parents at the time of the conception of the child.

BREEDERS PROPAGATE ANY PECULIARITY.

Breeders will propagate any one peculiarity of animals that they chose, by selecting any couple that have a prominence of the peculiarity they wish to propagate, and allowing them to be united, and then uniting their issue with others of prominence in the same direction. By thus repeating, they will have a wonderful development of that peculiarity aimed at; and

it is thus that breeders succeed in obtaining a race of any one special characteristic. Examples are seen in the fine-wool sheep, and in the Morgan horses. It is thus that we can produce monsters at will, if our *will* is long enough, and it is often done in the rabbit, which breeds rapidly.

MODES OF TRANSMISSION.

There are two modes of transmission given by scientists — the invariable mode, and the variable mode.

THE INVARIABLE MODE.

The first, the invariable or permanent mode, is based upon the unchangeable law of Nature, as shown in the procreation of species or races, and their classes. Examples are seen in man, who invariably reproduces man; and of the races, in the negro, who invariably reproduces the negro. The horse is sure to procreate the horse, and the pony horse only the pony horse; and the dog will only give, as issue, the dog; nor will the shepherd dog procreate the greyhound. All living beings, whether of the animal or of the vegetable kingdom, will

reproduce only beings similar to themselves. Here we have Nature's law fixed and immutable.

THE VARIABLE MODE.

The variable mode is based upon a law of Nature which we believe to be equally unchangeable; but from the fact that man has not yet been able to fathom it, we see it as a variable law. It transmits the physical, mental, and moral characteristics of ancestry, good or bad; but in an augmented or lessened amount, with restrictions and intermissions, and sometimes with a total disappearance of a particular quality. It is by this law that the perfections and imperfections, the moral aggregations or degradations, and the woful list of countless diseases, may or may not be entailed upon the issue — we cannot tell when or where; as to our knowledge it has never been solved, and we see it only in the form of variations, without rule or number. Yet among all this unknown variation valuable suggestions may be obtained; and we, as parents, should act in accordance with the knowledge we have.

TYPES OF THE VARIABLE MODE.

A French author gives types of variable inheritance like these: 1*st*. The "direct transmission," from parent to child. 2*d*. The "indirect transmission," from collateral parents. 3*d*. "Atavism," from the ancestry of parents. 4*th*. "Hereditary influence," from a previous husband or wife.

"DIRECT TRANSMISSION."

The first is most common, as seen in children who most usually resemble their parents in form, features, diseases, and in mental and moral tendencies.

"INDIRECT TRANSMISSION."

The "indirect mode" is where the "direct mode" does not occur, but the child has a strong resemblance to some of the "side relations," as an uncle or an aunt.

"ATAVISM."

"Atavism" is shown where a child has a resemblance to a grandparent or a great-grandparent; or perhaps the similarity may reach

back for several generations. It is said to be most common among mongrels.

"HEREDITARY INFLUENCE."

"Hereditary *influence*" is the most extraordinary of Nature's phenomena — the child representing neither father, mother, or ancestors, but is the image of the mother's first husband. Eminent physiologists have marked this "hereditary influence" in many instances, and known this resemblance to be transmitted through several generations. A widow who has had children by her first husband marries again, and in due time a child is born unto her with some, and perhaps many, of the peculiarities of her former husband, deceased many years ago.

THE ENDLESS EFFECT OF A SINGLE MARRIAGE.

What results, then, hang upon the union of the sexes? It may, and probably will, affect all the issue of that family to the remotest generation. A man may entail disease upon children not his own. A woman's first husband, even though gone to the "spirit land," may exert an influence upon all of her issue. Ought not a marriage, that has such a powerful influence for

good or evil upon the unborn — upon those who are brought into life unasked — to be a solemn contract? when it may affect not only the issue of that conjugal relation, but the issue of another future union?

THINK BEFORE YOU CONTRACT A MARRIAGE.

Man! seeking a mother to your prospective children, remember that you are acting for that which will reach as far, and endure as long, as your "family tree" shall continue to thrive.

Woman! sought as the wife of one who shall be the father of your children, step slowly — do not wed a stranger, nor one concerning whose mind, morals, or physical condition there can be a doubt. You are acting for, perhaps, a thousand lives, whose health, character, and destiny depend upon the answer you give this man; and remember that those lives cannot choose whether they will or will not exist.

MARRYING IN HASTE.

Marry not in haste, or you and future generations may repent at leisure. Love is right, but reason should be the autocrat upon the throne of the kingdom of marriage. "Zounds,

I love her, and I'll have her if I have to swim rivers for her," is too much our American idea of marriage. No matter what the obstacle, though it must affect not only us, but our children, and children's children for ever, "that girl I am going to have." There is good in this determination, yet there would be much more good in it, if you would, Davy Crockett like, "be sure you're right" before you "go ahead."

PHYSICAL ENTAILMENTS.

The most common and fixed of the entailments are the physical, as the form, size, complexion, and visage; that is, the transmission of the characteristics of the body. These resemblances everybody has observed; they are the easiest seen, and the most usually commented upon.

Then comes the entailment of the structure of the organs — the constitution; the different qualities or constituent parts of the economy — the temperament; which last two determine certain conditions which relate to life, whether sound and strong, or feeble and sickly — whether long and full of vigor, or short and enervating.

LONG-LIVED ANCESTRY.

Children who are descendants of a long-lived ancestry, are possessed of a far greater chance of longevity than those whose ancestry were short-lived.

A STRONG ANCESTRY.

A strong, healthy parentage is sure to transmit some of its strength to its progeny, which have a far healthier and longer life-rate than the issue of debilitated bodies. We cannot raise a race-horse from two debilitated animals. When we want a powerful horse, or a fast horse, we seek it from a sire and dam which have the physical points required in themselves; if we seek thus, we are quite sure to find; and if we look for a large, powerful horse from a parentage of the opposite kind, we are very sure to fail. What we here know of the horse we may know of mankind; for it is as strictly true in the one as in the other. If all men and women would act upon this law when contracting a marriage, our world would be peopled with a healthy, sound, strong race.

COUNTERFEIT HUMAN BEINGS.

We often meet — more often in the cities of our modern civilization — with numerous lean, pale, counterfeit human beings; whose degeneration is to be laid to the enfeebled constitution of one or both parents, which was, in turn, entailed upon them by their parents; or, perhaps, they may have acquired it by their own excesses. For we often find that intemperance of the parents, voluntary abortion, too early or too frequent child-bearing, or a disproportion in the ages of the parents, results in these weak, pale ones.

Let us not be blind to the fact, that a debilitated husband and wife cannot produce robust children.

BEAUTY CAN BE ENTAILED.

Beauty of form and feature are capable of being perpetuated by the parent in the child, as well as deformity and ugliness. Among some of the ancients, kings were condemned to pay a fine for marrying enfeebled and delicate women; and the Grecians were very particular to hand down to their children anything in

their constitutions that was especially desirable; as size, strength, good proportions, and beauty, and in most instances they were very successful. Beautiful features, as well as irregularities, are transmissable. We have all seen this so often that we fail to notice or think of it from its frequency.

SPECIAL POINTS TRANSMISSABLE.

The aquiline nose has been handed down from the families of Rome so long that we now call it the Roman nose. Low foreheads, the form of the mouth, the size and appearance of the eye, are easily and surely transmissable, as well as large and small heads, long or short arms or legs, and large or small waists. The acquired small waist is quite as transmissable as that inherited — a fact which mothers would do well to remember when lacing their corsets. The union of small statures is a sure indice to the smallness of the next generation, as well as the union of large ones. In fact, all of man or woman's peculiarities of a physical nature are liable to be transmitted to their children.

DISEASE IS TRANSMISSABLE.

From this fact, as well as from observation, we know that disease, or a tendency to disease, is transmissable. A child whose father or mother has had rheumatism is much more liable to it than one who descends from parents who never had it. We ask the question, when first we see a consumptive patient, if either of his parents died of consumption, and are happily disappointed if we hear a negative answer, as that is contrary to the rule.

THE PHYSICIAN SEES IN THE CHILD THE HABITS AND SINS OF THE PARENTS.

We, as physicians, are called to treat a case of skin-disease, and in certain forms we almost involuntarily ask which of the parents had this; or how old were you, mother, when you had this same humor? Again, we see a child suffering from a terrible skin-disease, and invariably look at the father to see if he shows the effects of his sin; or ask him when he had syphilis. If he is disposed to be honest, he will admit it was before that child was conceived. We look thus to the father, as he is so much more

likely to be the sinner, not but that the sins of the mother would be equally visited upon the child.

Nervousness, neuralgia, St. Vita's dance, idiocy, and insanity are all surely transmissable. We do not say that the child of such a parent is sure to have it, but they are two to one more likely to have it than the child of sound parents. In fact, all disorders or diseases that thoroughly permeate the system, so much so as to be called constitutional diseases, are quite likely to be entailed upon the issue; or, more correctly, a tendency to those diseases is entailed.

TRANSMISSION OF BRAIN-POWER.

But, in addition to the transmission of the physical characteristics, the child may become heir to the intellect of his parentage, because, in the transmission of the physical conformation, the bodily health or disease, the temperament and constitution, we must necessarily transmit the conformation of the brain, which, in a manner, indicates the quality of the character.

Education and surroundings may, and will, probably, vary these inclinations; but for all that, similar moral tastes and ambitions —

similar powers of intellect — will be seen in the child. We cannot contest the transmission of the intellectual and moral peculiarities of the parent with any more success than we can the physical, which are more plainly seen. Parents who have a vigorous brain — a highly cultivated intellect — generally procreate children of ability and intelligence — children capable of high culture; while parents of low mental vigor, and that uncultivated, almost never have children of intellectual strength. Strongly wicked minds, as well as good, sensible minds, are very apt to descend from parent to child.

BAD HABITS MAY DESTROY GOOD ENTAILMENT.

A child may be born of the best parentage — from the best moral and cerebral model, and be of the highest intellectual promise, yet the treatment it receives while growing up, or some acquired habit, may impair all this natural force.

HEREDITARY TENDENCY TO CRIME.

There is a hereditary tendency to crime, as observation strongly proves. They may not commit the same crime, but the children of criminals are very much more likely to become

partakers in some criminal act than those who descend from parents who are moral in practice as well as in "outside theory." True, all the children of rude parents do not show it, but all may, and would, if no outside influence should prevent.

GOOD TEACHING MAY SAVE FROM ENTAILED IMMORALITIES.

A moral mother may instill so much of her teachings into her child after birth, especially when the child has inherited the moral instincts of the mother, as to overbalance the immoral tendency inherited from a profligate father. But when a child has thus inherited the bad morals of the father, the mother has a very hard lesson to teach her child, as all his inherent immorality is leading him astray from his good mother's teachings.

FATHERS TO DAUGHTERS AND MOTHERS TO SONS.

Physically, the father will give, in procreation, the form and shape of the head and upper extremities to his daughters; of the body, especially the hips and abdomen, to his sons. The opposite is true with the mother. She gives

the form of the head and arms to the sons, and the form of the body, hips, and lower extremities is given to the daughters. Thus in sons, who receive the head from the mother, we are more sure of finding good intellect when the mother's brain is vigorous; and daughters of fine intellectual powers when the father was a man of mental activity.

During gestation it is believed that the mother's influence controls the moulding, and the influence received from the father controls the vitality; and that the mother transmits her moral qualities to her sons, and the father transmits his to his daughters. Thus we do not often see sons who have mothers of truly solid moral worth, native and practical, standing upon a low moral scale; and we can all recall instances where immoral fathers have daughters with whom we would not choose to be associated. Historical cases innumerable may be quoted, proving the foregoing thoughts to be true, but our space forbids quoting them. But it is a fact beyond dispute, that the usual transmission is from father to daughter, and from mother to son; and often, where we see an apparent exception, we will find that the like-

ness has only passed a generation or two, as a son inheriting from a grandmother, or a daughter from a grandfather — "atavism."

PHYSICAL HEALTH MAY ENTAIL INTELLECTUAL POWER.

Many noble and worthy men have descended from a parentage that was not remarkable for great mental powers, but the parents must have been temperate in habits, and sound in mind and body, to have furnished the necessary elements from one generation to another for future greatness. If such elements existed, bad habits or unsoundness of the physical powers would have tended to destroy them; for good fruit will not grow on an unsound tree, nor is it possible for the weak bodies of a father and mother to give anything like greatness to their sons and daughters; certainly if both are weak and sickly. A sound scion must come from a sound root, in the animal as well as in the vegetable kingdom.

HOW TO ENTAIL THE GOOD.

But we have said enough to show "when" we are sure, and "when" we are liable to entail

ourselves, or a part of ourselves, upon our children; let us now study "how" to entail the good, and not the bad, of our physical, intellectual, and moral characteristics.

WHAT MONEY DOES.

Money so regulates all our affairs that we, as a people, are ready to use any effort to raise the race-horse — the fine-wool sheep — the best milch-cow; but we do not take heed in applying these same efforts to the raising of our children. They come as they happen to, and go the same way. It is most wonderful that the brute, in this respect, has the advantage of man; and still more so when we see that this advantage is given by man.

DECEPTIONS USED TO "GET MARRIED."

A family desiring to have their children married, will never say to the world that they have diseases that will be entailed upon their issue, even when they know that they are transmissable; but, on the contrary, will use every endeavor to hide their infirmities; and many are the young men and women who have, after marriage, awakened to the fact that their life-

partner was infirm, and that they had transmitted those infirmities to their child. And yet others have found their children suffering and never knew that the cause was received from one of them, their parents; never knew that if they had married differently their children would have been saved these sorrows, and they would have kept for their own use the dollars paid for long doctor bills, nursing, etc.

YOUNG MEN DECEIVED.

Many are the scrofulous, leucorrhœic, neuropathic, hysterical daughters that have married young men who did not know but what they were perfectly sound, never having thought to ask themselves, or any one else, if they could, and would, give them healthy children.

YOUNG WOMEN DECEIVED.

Many are rheumatic, syphilitic, furiously passionate young men, with tobacco-chewing, dram-drinking habits, who have married young ladies who did not know what they were marrying. The solemn realities of life have shown them, when too late, the amount of deception used, and in endless sorrow they have suffered, often

in silence; many are the watchful hours such wives have spent, in heart-broken solicitude, over the couch of a little sufferer, in part flesh of her flesh, but enough flesh of a degenerate husband's flesh to fill it with disease; and many such wretched wives have never known that their child was suffering for the sins of its father.

WE SHOULD HAVE LAWS TO PREVENT THIS DECEPTION.

We have laws to annul a contract in which deception is used in all instances, except when that deception is of a nature which makes only a child the principal sufferer. If we sell an unsound horse, the buyer has his remedy, but if an unsound woman is palmed upon us, one who will leave the stamp of her unsoundness upon our children, we must bear it; if a diseased man is able to deceive a woman into a union with him, she has no remedy—she must suffer all he may entail upon her children, and must care for the masses of disease that are the result of his sins; and if she chance to murmur, will often only receive his brutal treatment.

THE CHINESE LAW.

In laws to release from such awful deception as this, the Chinese—an uncivilized people—are far in advance of our American nation, for they have the following: "If a father gives away in marriage a daughter afflicted with some capital ailment, without having previously informed the intended husband, the marriage may be annulled."

A CAUSE FOR DIVORCE.

The deception that unites a sound person in marriage with a seriously diseased person, is the most monstrous piece of fraud possible for humanity to practice, and it requires relief by statute law. It should be second only to adultery, as cause for divorce; no matter what the deception or disease is, only that it affects the innocent unborn.

A STEP IN PREVENTING DISEASE.

Then we say one step in obviating the entailment of disease upon the innocent child—one step towards making our people a stronger people physically—one step in the path "that

prevention is better than cure," will be laws to save us from the deception used to "get married."

SOME ARE WILLING TO BE THUS CHEATED.

But in some instances we see the sound, healthy young man — with his eyes open — when no deception is practiced — when he knows that his intended has consumption — and knows that she is liable to entail it upon his children, who will still marry her, and she will accept the position of mother to his child. Young man! think many times ere you do this. If you and your intended were the only ones to suffer, we would be silent; but in behalf of a helpless, suffering, soon-to-be-orphaned child, with a body full of the seeds of the same disease, or, perhaps, a worse form of disease, we must say, as you will love your child, do not this thing; you cannot, if you use your reason instead of your passions. If we cannot educate people above such a marriage, ought we not to have laws that will forbid it?

SHOULD WE NOT STOP THE MARRIAGE OF THOSE WHO WILL HAVE SICKLY ISSUE?

Then would not a second step in this "prevention better than cure" be, a law forbidding the marriage of a person with transmissable disease, to a person of sound health, having no transmissable disease? If they are allowed to marry only those equally diseased as themselves, the diseased race would soon run out.

Say you this is a hard law. But you have laws against the use of a glandered stallion, and are not your children of as much worth as colts? We have laws against the accuplement of the same blood, as we think it deteriorates the offspring.

Does the same blood act any more powerful than diseased blood?

WE CAN AND MUST EDUCATE ABOVE SUCH SICKLY UNIONS.

Let us educate men and women above such a diseased union if we can—show them the wrong—the sin of bringing children into this life only to suffer with disease, and in a short time to die, causing sorrow to all who learned

to love them. We, as a people, have not seen — have not known — that we were entailing so much disease and sorrow upon posterity. These thoughts are new to most of us, as applied to our children, and when we fully comprehend the facts as they are, we will not need laws to save our children. Then we repeat, what we want is "to know these things," to study, observe, think, and talk them over.

CHOOSE A HEALTHY MATE OR NONE.

We claim that in choosing a mate, healthy physical qualities should be considered above anything else; and when we do so consider them, we shall avoid launching children into this world with an endless assortment of transmitted disease.

"BORN WELL" AND "LIVE WELL."

Then we say, if the healthy would only marry the healthy, we would soon have little use for doctors among their descendants; espepecially if in addition to being "born well" they would "live well." Also, we say, if the diseased *will* marry, they should only marry those that are diseased, and thus save engrafting bad

health upon good health. Then we would have inherent health on one side, and inherent disease on the other. With Hygienic care, one will grow better; and if the othor does not, it will soon run out, from impossibility of procreation.

THE GREAT QUESTION.

But as these suggestions are not in accordance with what people will do, and we now have many unions between those who cannot transmit health to their issue; the great question is, how shall we conduct ourselves so as to leave as little of disease with our children as possible? We shall have other unions between those who are not wholly sound. Then it is our duty to study that which is for the weal of future generations, and we will do it, as we would save the innocent from suffering.

IMPROVEMENT OF DOMESTIC ANIMALS.

Experience teaches, and almost every one knows, that deterioration or improvement of our domestic animals follows the choice of the animals we allow to be united together; and every one ought to know that the same rules that apply to animals will apply to man.

DETERIORATED HUMAN BEINGS.

Two deteriorated human beings are as sure to issue deteriorated offspring as two deteriorated domestic animals, and *visa versa.* But one powerful, robust constitution *may* make up for the weakness of another in a measure, when the debilitated one is not too thoroughly permeated with disease, and thus may procreate children that, with good Hygienic treatment, may not develop their inherent tendencies; and with proper care during gestation, infancy, and youth, some satisfaction may be found in the first generation. If this rule be continued in the union that shall give the second generation, we will be quite sure of having children possessing sufficient inherent strength to be reared in good health, by using the care that Hygiene directs.

MARRY YOUR COMPLEMENTS.

"Thus, the union of the lymphatic with a bilious temperament seems to be the best accomplement to modify, or destroy, the scrofulous taint in one of the parties."

If persons would always marry their oppo-

sites it would be found to largely do away with these hereditary tendencies; especially in those who were not too far gone to be united with any one. Give, as husbands to girls who have lucorrhœal habits, or consumptive tendencies, men who are robust, sound, and rich in the sanguine temperament—of iron constitutions—able to act and do well their part.

To men of debilitated stock—who are delicate, or have nervous disease—give, as wives, girls of strong, rich organizations, "full of the sap of genuine health." If we would thus always marry contraries, we would soon have no call for laws to prevent those thoroughly diseased from marrying, for the morbid transmission would become extinct, and soon we should have a healthy generation coming up, that would be perpetuated in health through other generations, so long as they lived in accordance with Hygiene. Let all persons who has a hereditary taint in their blood, if they marry at all, marry only those who have a direct opposite tendency. Let the scrofulous marry the bilious, the nervous mate with the cool unexcitable, the quick with the slow, the delicate skin with the tough skin, the dark

complexion with the light complexion, the narrow chest with the wide chest, the small waist with the large waist, the contracted hip with the broad hip, and the weakly, if at all, with only the strongest; and, above all, the syphilitic with — nobody; by which union of contraries we will have a "crossing" instead of a duplication. If these contraries cannot be found among present acquaintances, an enlarged circle must be formed, so that opposites may know each other; and other climates may be sought, where we will be more sure of finding the varieties of temperament, constitution, and health wanted.

EARLY AND LATE MARRIAGES.

Too early marriages, and too late marriages, as well as too frequent procreations, are each a fruitful source of diseased entailments. They either partake of the weak end of life, or, by over-doing, keep the parents weak; from which weakness the bad is more sure of entailment than the good. The truth is, that which we obtain upon the limits of possibility will not be as perfect as that obtained from a mean.

INFLUENCE OF CLIMATE UPON ENTAILMENTS.

Climate has much to do with regard to procreating strong children, and rearing them so they will not develop hereditary taints. Those who have a scrofulous or debilitated constitution — those who have the lymphatic temperament — and are almost sure to transmit it to their children, should seek the high and dry lands, where the atmosphere is very dry; not humid with fogs, but full of heaven's sunlight. They should avoid all cold climates, where too much of the forces of life must be expended in keeping up the temperature of the body.

NOURISHING FOOD.

Another means of combating a hereditary taint of disease, is by living upon the most nourishing food — that food which is of easiest assimilation — such as animal foods, and bread not made from flour of wheat that has *lost* all its nerve-feeding phosphates in what is termed "middlings," fed to stock instead of man.

CONFINEMENT OF CHILDREN OUT OF THE SUNLIGHT.

In cities and villages the great source of scrofulous tendencies, that children have inherited or acquired, is in the close, hot-house confinement that the child receives—away from pure air, where they are obliged to breathe impurities over and over again—shut out of the sunlight of heaven. They will grow up like vegetables in the cellar, perhaps rapidly enough, but pale, puny, debilitated, with none of the sap of health in them. To save from such a fate, open the doors and ventilate the rooms, and pull down the curtains, and throw back the blinds, that the sun may shine upon your child, and produce the change in its growth that only the sunlight can produce.

We know we cannot raise a vegetable without sunshine, and we know that the more it has the better. Apply this same rule to your child, and let him have sun and air undiluted, and you may save him from developing those seeds of disease that you, his parents, have planted in his constitution, and for which you are largely responsible.

NATURAL PLAY AND GYMNASTICS.

Another means of preventing the development of inherent diseases is to be found in gymnastics, which are but a form of disciplined exercise; and we would much rather the child would take the exercise as his instructive nature calls for it. We know the gymnasium is good, far better than quietude, and we firmly believe it has saved many from a state of debility; but the natural child-play of the young is as good for boys and girls as for colts and lambs.

WHAT IS IN THE FOLLOWING PAGES.

We will attempt, in the following pages, to give some rules for educating and developing the child into a full-grown man or woman physically, and to them we would refer for the mode of preventing the development of diseases already transmitted.

PHYSICIAN'S ADVICE IN A MARRIAGE.

In this matter of marrying right, we think much can be learned from good, sensible physicians, who have been thoroughly educated in

early life; and since have been observers and students of Nature as they have daily seen it unfolded before them. We do not mean that class of doctors who know enough to cure all the diseases man is heir to, but men whom our worthy college professors have taught, examined, and granted diplomas to—who have, after receiving their diplomas, not laid by the book, and thought they knew it all—who have not spent idle time in country stores, whittling dry goods boxes, or in city saloons playing billiards—but who have watched their patients closely, and spent all their spare time with their books, learning how to save humanity from the many ills of life.

Young man or woman! if you know such a doctor as this—and they are to be found with a tolerable frequency—and if you do not fully and intimately know "that one you are thinking of," no person in the world is better capable of advising you as to the probable results of the marriage than that doctor. He has observed the good and bad results following marriage many times; do not be afraid of him, but talk plainly with him, and he will not deceive you, nor betray your confidence.

CHAPTER III.

Pure Air and Respiration.

THE VALUE OF PURE AIR TO THE CHILD.

THAT the infant breathes from its first introduction into the atmosphere that surrounds our earth, all know; but how few consider the importance of that respiration which keeps that little one alive!

If it does not breathe, we know it will die; and if it does breathe, we know it lives. Let us consider this function a little further. Any action of so much importance that with its use a child lives, and without its use it dies, must have some powerful effect upon its animal economy; and it cannot be that it makes no difference how the child breathes, when it breathes, or what it breathes.

The infant wants all the air it can use, from

the time it first begins to use it; and it needs it, whether it is weak or strong; and still more, it wants, needs, and must have it, pure, sweet, and fresh; full of the oxygen of life, if we would keep it healthy.

Grown people want good, fresh air, and will find their health largely decline when deprived of it. How much more must an infant, in its first struggle for life, be dependent upon it?

SUFFERING INFANTS.

Nurses and mothers will often put their infants in close rooms, from which the oxygen has been used until they are themselves debilitated and languid; and they will not only put an infant in such a close room, but will wrap it up in blanket and bed, and thus nearly suffocate it, depriving it of all the air, except what it can draw through these wrappings.

It is said that forty thousand children were destroyed in England, between 1686 and 1799, by being smothered or overlain by parents.

Very true, children, especially small and quite young ones, must be kept warm; but it is not necessary to warmth that their faces and noses should be covered up so that air cannot have a

ready access. Give them room to get their noses out where there is air that has not been breathed over again and again, until it has more bad than good in it — until it is foul with the exhalations of their bodies — not always kept as clean as they should be.

DON'T COVER THE INFANT'S NOSE.

Many having the care of infants sleep with them, covering the infant's head up in bed, without a crack for fresh air to enter — all tucked up thus for fear the "dear creature will take cold," and then are always complaining that their "baby takes cold so easily." The truth is, no children will take cold so easily as those. Never having their quota of pure, fresh air to breathe, they are never robust and strong, but puny and weak, overcome by anything that would not even affect well children.

They are partly asphyxiated from the want of enough good, wholesome air — starved for oxygen. This keeps the skin of a dark purple color, not fresh and ruddy; or if they are not dark and purple, they are pale, and of a tawny white, and without the endurance they should

have. The first time they get a snuff of fresh air they "catch cold."

OPEN THE WINDOWS AND DOORS.

Then, mothers! if you would have healthy children, and have them grow up in health, and make healthy, strong men and women, and become parents of healthy grandchildren to you, give your infants a free chance to breathe heaven's pure air; don't cover their noses in bed, in the crib, or in your lap; and as they grow so as to creep and run around, don't be afraid they will look out of the door in the sunshine, where the winds of heaven have blown the bad all out of the atmosphere, but open a way to their breathing apparatus, and let the nose out —open the windows of your nurseries, and of your sleeping rooms, and theirs—open the windows and the doors of their play rooms, and let them step upon the ground, and sit upon it, and roll upon it, and cut up all the gambols of which young animal life is capable; not only say they may, but if you find a child so much out of the range of all animal nature as not to jump at the word may, say they must, and take them by the hand, or in your arms, and go

with them, and watch the young life develop—the old, sallow look give place to the red cheek, and the puny, weak one changed to one of those tough, hardy sticks that can withstand any amount of the exciting causes of disease.

"BLACK AND TAN."

This being out of doors in the pure air will make them "black and tan;" their faces will not have that immaculate whiteness which the neighbors—seeing more with an eye for beauty than health—spoke of as so handsome—such a clear skin.

HEALTH, AND NO DOCTOR BILLS, BEST.

But do we choose health and the beauty of robustness, or diseased constitutions and the beauty of feebleness? Do we prefer to pay the butcher or the doctor? To which will we open our pocket-books the most readily; an account reading, "To 10 lbs. beef," or to an account reading, "To prescriptions and medicines"?

All prefer to pay the butcher, with health and sound sleep, to paying the doctor, though he may save life; for with what you call him

to remove, comes pain and suffering with its watchfulness.

PREVENTION BETTER THAN CURE.

Then, if we choose health and its accompaniments, we should try so to guard our children's constitutions that they may strengthen, and become more enduring. Your honest family physician will tell you that you can prevent more of the diseases incident to childhood, especially those that arise from breathing impure air, than he can cure.

SHORT GRAVES NOT PROVIDENTIAL.

Look at the number of short graves in all our cemeteries, and tell us whose fault is all this. Do not say "it is a wise Providence;" that "His ways are not our ways;" that "these little ones were too good for this wicked world"—for God's providence has never had anything to do with it.

Do you think that He would call little children into this world to suffer, and only suffer, and then call them immediately out again? No! he had a work for them to do, but through our carelessness and ignorance they were—if

born without inherited disease — slaughtered; permitted to live without air pure and sweet — the freest and most abundant of the necessaries of this life — and from this cause they passed away.

TOO GOOD FOR EARTH! NO.

Do not tell us they were too good for earth, where a good example is so much needed. Such a goodness is only that which arises from a physical weakness, too feeble to do any wrong — only a negative goodness. They had not vitality nor life enough to do a wrong act or a right one, only as they received outside impulses. Show us a truly bad boy — in accordance with the usual application of the term bad — and we will show you one who has physical stamina — who can withstand the hard knocks of this life.

PARENTS RESPONSIBLE FOR THE CHILD'S HEALTH.

No! those are phrases, or expressions, to ease a sorrow; but they will not remove the responsibility from the shoulders of parents and guardians. They are required, and ever will be, to give their children a full and perfect development of *physique*.

COMPOSITION OF PURE AIR.

Pure air, in which we are now so much interested, is easy to be found, unless man has been the cause of its impurity, directly or indirectly. Its composition, when pure, is oxygen one part to nitrogen four parts; and it is a mixture, not a chemical union. With these we find a small amount of carbonic acid, varying from five to six parts in ten thousand; and there are some traces of other substances. Watery vapor is found mixed, in varying proportions, in the atmosphere; more abundant near large bodies of water, and quite sparsely on the inlands, as the great American plains; varying, also, with the seasons of the year.

PURE AIR GIVES VIGOR.

Such an atmosphere as this will support life, when we are where enough of it is inhaled. Then we may feel that every inspiration will carry new vigor to our physical systems, and to our minds; and that each expiration will remove poisonous accumulations from our blood.

If we, grown up people, so much need this

fresh, pure air—who are only replenishing the waste of our bodies with nutrition—how much more does the infant or child need it, who is not only replenishing but growing? Here not only the worn-out must be removed, but all the waste of their extra food for growth, after the nutrition is taken from it, is to be removed; the infant is making more blood, according to its size, than the adult; and none of it is good until it comes in contact with the air in the lungs, and receives its amount of oxygen. This oxygen is the only part of the air of special service to us, and this we cannot live without.

HOW THE BLOOD IS KEPT PURE.

All the venous blood in the body is very rapidly brought to the lungs, so loaded with carbonic acid as to be unfit for use; and this carbonic acid is here exchanged for oxygen, which exchange has made the blood again pure arterial blood—fit to go out again with its load of nutritious matter, to exchange a particle here and there for a particle of that which is of no further use to the animal economy.

THE IMPURITIES IN THE AIR.

Air is made unfit for use — made foul and impure — by having gases, vapors, and organic materials mixed with it, and by having an undue proportion of either of its normal elements. But the most important of the impurities — in a Hygienic point of view — are those that arise from the habitations and workshops of men, and from the nearness of our homes to the offal and the excretions of our domestic animals.

We are continually exposed to those influences, and yet they are most completely subject to our control.

ALL IMPURITIES NOT DETECTED BY THE SENSES.

Many impure elements are not detected by the senses; we can neither taste, smell, see, nor feel them; especially if we have been for some time subject to their influence, and that influence has been gradual in approach or accumulation.

All know that the effluvia of a slop-hole or sewer is readily smelt when we are first brought near it, but that if we are for some time under its influence the sensibility becomes blunted —

our nasal organs fail to respond to the disagreeable odors.

MOST DANGEROUS WHEN NOT KNOWN.

But we should ever remember that our systems do not fail to be contaminated by poisons, though our senses fail to perceive those poisons. By forgetting this fact we neglect to remove these nuisances. There is no more false logic than that which says that because our senses do not perceive a foul emanation, our systems have so accommodated themselves to its effects that it does not hurt us. On the contrary, it has so affected us that it has become a part and parcel of our physical selves, and we are so much weaker, so much less able to withstand an exciting cause of disease.

EASY TO GUARD AGAINST PLAIN IMPURITIES.

Every-day common-sense is sufficient to guard us against plain causes of injury and disease; but an intelligence founded upon science is needed to protect us from the subtle influences that arise here and there to vitiate our constitutions.

Infants and children have to be guarded

against all the causes of disease; as well the obvious as those more difficult of appreciation. They are growing, and from the fact of growing — and thus assimilating to their own use more of that which they receive into their bodies — how very important it is, that all they receive should be pure and wholesome.

CARBONIC ACID GAS.

Carbonic acid gas, one of the normal elements in the air, in a very small proportion, is often very abundant and very injurious. It is the same gas that destroys life when shut up in a close room, where there is a charcoal fire burning. The gas is formed rapidly by burning charcoal, and in a short time enough has collected to render the occupant of the room insensible; and in this state they soon pass away from life.

A few persons lose their lives in this way; but many, very many, lose their lives, and if not their lives, their health, by inhaling this gas in small quantities in close, unventilated living-rooms, nurseries, and sleeping-rooms. Though this process is slow, producing its effects so gradually as to be hardly perceivable, yet it is

sure. These close, unventilated rooms, in which children are often kept, are so many manufactories of disease; and are as sure to produce a debilitated constitution — a constitution without the stamina to withstand disease — as a charcoal fire is to destroy the life of the person who occupies a close room where one is burning.

This union of carbon and oxygen is going on in our bodies, and in the bodies of our children, just as we see it in the burning fire — only, of course, not as rapidly — and, as before said, the result is carbonic acid gas, which, in the living being, is thrown off by the lungs in the act of breathing, and from the skin.

CLOSE ROOMS SHOULD NOT BE SLEPT IN.

In the close room we are breathing the air over again and again; uniting its oxygen with carbon in our bodies, and then throwing it out again by the lungs; thus using up the oxygen until there is not enough left to support life fully; and then, in the child more than in the adult, we have the weak, debilitated constitution.

So sure as we continue to let our children

sleep in these little, close rooms, or give them unventilated rooms for their play or studies, they will not be healthly and strong. Grown people, sleeping in these poison-generating rooms, find themselves dull and depressed, languid and discontended; but children are cross and sick, pale and listless, with poor appetites and foul breath.

DOCTORS SHOULD PREVENT AS WELL AS CURE DISEASE.

Physicians often find children thus, and still parents do not see it, much less see the cause of it. And often the doctor — who may be one who thinks only of a prescription of medicine to cure — does not see the cause. He sees the trouble, and it must be at once attended to; but he fails to go to the root of the evil, and the cause is not found. If the child is cured, it is cured but to go back to the old habit of living and sleeping, and breathing foul air, and soon it is sick the same way again.

Thus the life of the child is passed, until its constitution is so much impaired that it suffers constantly through a short life.

THE BURNING OF LIGHTS IN ROOMS.

The burning of one gas burner, or of a single lamp, in a room, is as injurious to the purity of the atmosphere as the introduction of another person, and should be counted as one person when we are arranging the number of persons to occupy a room, or planning for ventilation.

Remember that all combustion produces carbonic acid, whether it be by fire in the stove — where the gas is carried off through the pipe — by the gas burner, or by the same process in our bodies.

THE WORST IMPURITY FOUND IN THE AIR.

But one of the most common of the atmospheric impurities is that which arises from our bodies — the exhalations from the lungs and skin in the form of organic matter, thrown off insensibly. It is this that we smell when we open the close sleeping-room in the morning. This is the effluvia that has greeted our nasal organs when we have opened the children's sleeping-room door in the morning, and been astonished that they could sleep in such a smell

so late in the morning, when everything out of doors was so sweet and pure.

IT WILL MAKE CHILDREN SLEEPY.

Perhaps we did not know that this impurity that has been accumulating in their room all night, was just what would make them sleepy.

THEY ARE THE MOST INJURIOUS.

Probably these organic impurities, and those arising from sinks, slop-holes, and sewers, are the most injurious in their effects upon children of any of the impurities of the atmosphere. Children are more under their influence, as they are from the necessities of their lives more at home, and thus more exposed to their effects than grown persons, who are often out in the open air.

THEY WILL SURELY PREDISPOSE TO DISEASE.

We do not propose to speak of the chemical properties of these organic impurities. It is quite sufficient that we know them to be poisonous, and that breathing them for a long time, or often for a short time, will be sure to weaken the constitution of children, if it does

not directly make them sick—will predispose to disease so they cannot ward off an exciting cause like those who are full of vitality.

HOW TO PROVE THE AIR IMPURE.

To prove that it is impure, pass the air from a sewer, slop-hole, or close room, for a short time through a few gallons of good, pure water, such as you would willingly drink, and after this foul air has only passed through this water, and for only a short time, take a glass of it and taste it if you can. You will find this a very difficult thing to do, for your eyes will tell you it is foul water, and your nose will in a moment learn that its stench is unbearable, and they, true sentinels to the mouth, will not let you be deceived into tasting it.

THE EFFECT UPON THE WATER SHOWS THE EFFECT UPON THE CHILD.

But why has it become foul? The impure air has only passed through it, and you have been using this same air in the same way; that is, passing it through your lungs, and through the lungs of your children, not only for a short time, but all night, and perhaps every night for years.

Let the change that this foul air has produced upon the water, illustrate its effect upon the living body; and not only teach us that the air is foul, but teach us that it equally affects our physical system; that our blood, and the blood of our children, will be contaminated and rendered impure by breathing it.

DID MOTHERS KNOW.

Did mothers know that they were laying the seeds of disease deep in the constitutions of their children, and thus shortening their lives, as well as making them suffer while they do live, by thus letting them breathe impure air, they would keep their nurseries and sleeping-rooms well ventilated, and their children would have only the purest and sweetest air to breathe.

DID FATHERS KNOW.

Did fathers only know that the foul sink, sewer, and slop-hole were sending poisons into their homes that would prostrate their children on beds of pain and sickness, and make long and large doctor bills for them to pay, they would not rest until they were removed. Fathers and mothers fail here because they are

not taught better — because they do not know the results.

FOUL CELLARS.

Cellars are often the sources of foul air arising from want of ventilation — the same air remaining in them for a long time; and from decaying vegetables, and sometimes from decaying animal matter. Keep them ventilated summer and winter; and it can be done sufficiently in the coldest season without making them too cold to keep fruit or vegetables. Do not keep anything in the cellar, or under the house, that is not perfectly sweet and wholesome; as all foul emanations from thence will pass through every room in the house.

THE BAD EFFECTS OF BREATHING IMPURE AIR ARE ENTAILED.

Breathing impure air is a source of much sickness among grown people, who get it in the workshops as well as in their residences. The standard of health in men and women, who would otherwise be healthy, is often so far reduced by it that they are never parents of quite healthy children; but leave their infirmi-

ties stamped upon their issue. In the school-room we find a very frequent and effective result of breathing confined atmosphere, in debilitated scholars, without ambition or energy.

IT PRODUCES SCROFULA AND CONSUMPTION.

Allow the child to breathe an atmosphere like that just described, filled with carbonic acid gas and foul organic exhalations from the body, for a few hours out of every twenty-four, and though you give him good food and enough of it, and though you give him good clothing and keep him warm, yet will the vital power be so much lowered as to provoke many disorders; but more especially and surely that degeneracy of the system, and imperfect and perverted form of nutrition or action of the nutritive function, called scrofula.

An eminent French physician says: "That the repeated respiration of the same atmosphere is a primary and efficient cause of scrofula, and that if there be entirely pure air, there may be bad food, bad clothing, and want of cleanliness, but that scrofula cannot exist."

WHY COUNTRY CHILDREN BECOME SCROFULOUS.

It will be found, upon a full examination, that scrofula is caused by bad ventilatien — by breathing vitiated air; and that it is not necessary that this kind of breathing should be prolonged either. A few hours each day for a short time will do the work for the child. Here we see why children living in the country, spending most of their time in the open air during the summer months, become affected with a scrofulous disease. It is because they spend a few of every twenty-four hours in a close school-room; or their bed-rooms do not receive the full amount of air required to keep them free from foul excretions.

"DREAD RIDER OF THE PALE HORSE" — CONSUMPTION.

When this scrofulous habit becomes localized upon the lungs, we have that "dread rider of the pale horse" we call consumption. It forms tubercles — which are masses, large or small, of unorganized, coagulated albumen — abortive attempts of an imperfect nutrition.

As the lungs are the first organs to meet,

directly, this impure air, it does not seem strange that they should be immediately and surely affected, as in consumption; and as the blood is not purified as it would be by wholesome air, we can easily see that through its impurities the whole body will be deranged.

IT IS OFTEN ENTAILED.

By the accumulation of these impurities in the blood, we have a general scrofulous habit acquired, which is made more dreadful from the fact that the child who has acquired it is not only to suffer itself, but if it lives to become a parent, its children will inherit the scrofulous cachexy, and theirs inherit again, until the race dies out.

These thoughts apply to healthy children — to those who do not inherit a diseased constitution, or a tendency to disease. If these sound, well children are thus easily affected, how will those who are the offspring of vitiated constitutions — those having hardly vitality enough to live under the most favorable circumstances — how will they be affected by their depressing influences?

IMPURE AIR WILL RAPIDLY DEVELOP INHERITED DISEASE.

These weak tendencies will be rapidly developed by impurities in the air. The want of oxygen will help to bring out all those hidden seeds that lay dormant under the influence of full respiration and adequate nutrition, and develop them into open disease. Many children who have inherited a consumptive habit, have very rapidly passed to a fatal termination, by bad and unhealthy surroundings; and chief among these are those same faults of respiration. All who have observed upon these points, know that good, pure air, constantly breathed, is one of the surest preventions to a development of a diseased habit, especially if the cachexy is scrofulous.

PURE AIR PREDISPOSES TO CHEERFULNESS.

In leaving this part of the subject we would quote from Dr. Ray. He says: "In school or hospital, or other considerable assemblage of people, the purity of the air may be pretty accurately measured by the amount of cheerfulness, activity, and lively interest that pervades

it; and yet so little do people think or care about this subject, that under existing arrangements there are very few who are not every day of their lives inspiring more or less highly vitiated air. The listlessness and stupidity of students, and especially of children confined in the school-room, are often due to the bad state of the air they breathe. Using the brain in a vitiated atmosphere is like working with a blunted instrument, and the effect, of course, must be aggravated when the inexperienced are first learning to use the instrument."

WANT OF PURE AIR MAKES DISEASE WORSE.

Improper ventilation increases the severity of all diseases, and they are much oftener fatal; and when that is avoided, patients have a slow convalescence; and often complications arise that will greatly lengthen an illness. This fact is often seen in febrile diseases, as the fevers of this country — viz., typhus, typhoid, and bilious; and it is often seen that cases of scarlet fever, measels, and small-pox, will convalesce sooner and more favorably if the sick-chamber has been constantly filled with fresh air.

IT MAKES CONTAGIONS DOUBLY CONTAGIOUS.

All contagious diseases are rendered doubly so when the exhalations of the sick body are accumulated in the room until the odor, and particles of refuse epidemics, are seen and smelt all over the house, when the door is opened for a moment, and the condensed poison allowed to escape from its confinement.

WE MUST PAY MORE ATTENTION TO THE LOCATION OF OUR HOMES AND SCHOOL-HOUSES AND THEIR VENTILATION.

That we may have a purer atmosphere in our dwellings, in our living-rooms, and in our nurseries, and in the bed-chambers — that the exhalations from our children in their school-rooms may be diffused instead of being concentrated — we must pay more attention to the location of our homes, and to the places where we congregate our coming men and women for the attainment of science; and when we have the places well located, we must see that every room in these buildings is perfectly ventilated. Ventilation in our stoves, chimneys, and in the walls of our rooms, is of no benefit unless we use it;

and we should not expect our children to think and attend to this, even though they are old enough.

HOW WE CAN VENTILATE ANY ROOM.

A dissertation upon the mechanics of ventilation is not the aim of this essay; it is only to impress its importance, and show the necessity of having pure air to breathe if we would be healthy. But any room may be ventilated by opening the doors or windows. Dropping the upper sash and raising the lower will do it very well. These should not be so opened as to pass a current of air directly upon our persons. These currents of air are sure "givers of colds." Sleeping-rooms are better ventilated by this arrangement of a window in an adjoining room, with a door open from it to the bed-room.

HOW TO VENTILATE IN BUILDING.

In building we should so arrange our ventilation, if possible, that fresh air may be admitted after being warmed; or, taken from the purest sides of the house, it should be warmed as it comes into the room, and an equal sized opening

should be made for the escape of the air of the room as fast as it is supplied with fresh air. This process will keep the carbonic acid gas, and organic impurities, diluted to a point so low as not to be injurious, and still the temperature of the room is kept the same, which is of great importance. Always remember that lights in a room are as effectual in using up the oxygen of the air, and producing carbonic acid gas, as persons are; and we must count every burning light as equal to the addition of one person to the room.

"THE OLD FIRE-PLACE."

How common to hear it said, "The old fire-place is the best fire, and that they are much more healthy—that these stoves make us dull and stupid."

This is all true; but it is not the fire-place on the one hand, or the stove on the other, that produces these different effects, but it is the difference of ventilation. The open fire carries all the impurities in the room up chimney, and the bad air thus removed is replaced by fresh out-door air.

THE CLOSED STOVE.

The closed stove does not do this—it is not a good ventilator. We build a fire in the stove—sit down beside it—no doors or windows being opened—the room all finished up tight, and soon we are sleepy and stupid—cannot think or act as we would. Our children kept in this room are cross and fretful, and wear a dull, sallow look; not the red flush of health; and soon—if not often let out of these accumulated impurities—not only look sick, but are sick in fact. Give these rooms pure air, and the stove is as good as the open fire.

INHALE ALL THE PURE AIR YOU CAN.

There is another point in this want of good air to be thought of, and that is that we use enough of it when we do have it.

It is not a panacea for our ills to have air in abundance—pure as the mountains and prairies can make it—unless we use it—use enough of it—an abundance of it. It is not like our food in this respect, we cannot take too much of it; the more the better; and after we have taken all we think we can, a little more will do no harm.

CHILDREN SHOULD STAND ERECT.

Then teach your children to stand erect as Nature made them to stand, and hold up their heads, throw back their shoulders, and expand their lungs by taking in again and again, all day and all night, and every day and night in the year, all the pure air their lungs will hold when thus expanded. Do not be afraid they will get too much of it. It will do no harm, but it will make them strong, sound, and vigorous.

PURE AIR THE FREE GIFT OF GOD.

It is a free gift of God to man; the freest necessity of this life; "without money and without price."

In fact it is the only necessity of this life—the only article that we cannot do without—that is furnished to us and our children, wherever we may be, simply by inhaling it. All we have to do is to draw it into our lungs, and throw it out again; which are acts that we cannot help doing. There is no earning it—no going after it—it is ever at hand where we can partake. Unless we shut it in, so it cannot be

changed by mixing with other air, and thus become diluted, it is pure and wholesome, except when it comes directly from some place of foulness. Can we believe that man will take, or use, so little of it as to make it impure by over use; especially when these impurities will plant the seeds of death in us and our families? Perhaps its freeness causes us to think it valueless, and we prize it as we do some other things—"according to their cost."

THE EFFECT OF STOOPING.

Children, and grown people, are too apt to stoop, and throw their shoulders forward, and sink the chest in, thus compressing the lungs until they will not hold air enough for ærating the blood. We ought, in the middle of life, to take about seventeen respirations a minute, of from one pint to one quart at each inhalation; and children should use, in proportion to their size and age, more than the mature person.

CORSETS AND TIGHT WAIST BANDS.

Others bind their lungs up so closely, with stays around the waist and chest, that they cannot inspire air enough; and so go through life,

short to them, only half breathing. It is truly very fortunate that children have not been as often "tight laced" as those "children of larger growth," who use anything that lessens the size of the chest, and so reduces the amount of air breathed, proving themselves at least only children in reason. If we have suffered from this compression when children, it has been still worse for us. Though children are usually free from the effects of tight lacing on their own persons, they are very much affected by this compression used by the mothers, which has been entailed upon them in the form of a small waist, which now, through the freaks of fashion, is unfashionable.

Now that "dame fashion" has declared a large waist the "form of beauty," we shall not need to preach against tight lacing any longer. May it never change back; and may the small waists and chests of our children expand to the fullest requirements of so good a fashion. Dress them loosely around the waist, and give the bust free and full chance to play and expand; and we will soon see our child — the lovely little girl — with a waist and bust that will make many men have a "heart affection."

How thankful we ought to be that small waists are no longer the fashion.

BUILD UPON HIGH GROUND.

For the health of families—especially of the children—we would have our residences upon the high lands; above the low grounds where we find atmospheric impurities most abundant. Nothing is more common than to see homes built in poor locations, when good ones are near by, because the builder did not think of the difference it would make in the health of its occupants.

THICK TREES TOO NEAR A HOUSE.

Trees too near a house are not healthy, for they keep the sunshine out, and retain too much of the moisture; but trees a little away from the house, a distance only sufficient to let the sun in, are very healthy.

We should not live in houses standing near low, swampy grounds, where vegetation is, or has been, rank, for it will decay fast; and there we have another kind of atmospheric impurity, viz., that arising from decaying vegetables. This is the miasma that generates "fever and ague," and this class of diseases.

IN AGUE DISTRICTS LIVE HIGH AND SLEEP UP STAIRS.

On all the newly opened lands of our Western domain, we should live on the higher lands, and always sleep up stairs — keep a fire morning and evening, all the time when the season is not so warm that we cannot bear it; and if we would be doubly cautious, keep a fire all night. We should also be very sure to keep out of the evening and morning dews.

If we will follow these rules, we may feel quite sure of escaping all miasmatic diseases. A belt of timber on the side of the house from which the prevailing winds come, yet not near enough to shade it, will assist in keeping the children free from miasma and its consequences.

SEWERAGE AND WATER-CLOSETS.

All sewerage should be so constructed as to prevent any of the foul air from regurgitating back into houses or rooms, or into their vicinity. All water-closets should be kept clean, and free from foul odors, by the use of charcoal, powdered, and thrown in; or by some of the many

disinfectants, such as permanganate of potash, sulphate of iron, or chloride of lime, etc.

When there is the least "bad smell" from any of the various sinks of corruption and disease, these disinfectants should be used; but first clean them out thoroughly. Many, very many children's lives, and much sickness, might have been saved had this rule been followed. Deep pits should not be sunk in the earth too near the wells from which we use water — when these pits are to be used as vaults for water-closets — for there is often a communication established between them. This connection may be from long distance, in a sandy or gravelly soil, and is a terrible source of disease.

TOO MOIST ATMOSPHERE.

The air may be filled with more moisture than is healthy, and it frequently is in very wet seasons, and near large bodies of water, as on the sea coast or on the borders of our lakes. But this moisture is variable, and to a good constitution will not do harm. In very warm weather too much moisture in the air is quite debilitating, and in wet and warm seasons we have prevailing epidemics. Children of scrofu-

lous constitutions are the ones who will be most affected by a moist atmosphere, and such children should not be kept on the sea coast, or in low, moist localities, but should be immediately taken where the air is dry and invigorating.

WHERE DRY ATMOSPHERE IS FOUND.

This atmosphere is found in highly elevated countries, distant from the ocean or inland seas. Such an atmosphere, with Hygienic treatment, will often raise, and make quite healthy, children of strong scrofulous and tuberculous tendencies — those who inherit it from both parents. A cold and damp atmosphere is very chilling, reducing the vitality very low, by carrying away the warmth of the body faster than it can be manufactured, checking the prespiration and increasing the action of the mucous membrane, which produces bronchitis, catarrh, or a class of female disorders — and all the more certainly when the effect is brought to bear upon children.

All persons, especially young ones, who live in a moist atmosphere in cold seasons, need more clothing than those who live in a dry air; and the feeling of cold calls for it.

CHAPTER IV.

Digestion and Nutrition.

FOOD AND FORCE.

THE full-grown, mature man or woman requires only sufficient nutrition to repair the waste of the body. This waste depends upon the amount of force used, either physical or mental, for the process of life is but a conversion of food into force, as in the form of mental force — thought; the form of vital force — the act of assimilating ailment to the system; the form of physical force — voluntary exercise; or heat, which is now considered as but another form of force. "Men taken collectively are like a powerful machine, in which a certain quantity of material must be furnished in order to produce the required amount of force."

MAN COMPARED TO A STEAM ENGINE.

In the origin and application of power, man may be very aptly compared to the steam engine; a certain amount of fuel must be supplied to the engine, and in direct proportion to this amount of fuel is the amount of force evolved; vital force in running its own machinery; physical force in power to act upon other bodies, and in heat, which may be converted into force. This is the same process seen in the life of man in all the particulars, except the thinking part—mental force; and here the engine requires the engineer to preside. Restrict the amount of fuel, and we lower the power or force of the engine; and as surely as we reduce the amount of food below man's necessities, so surely we reduce his force in one or all its forms.

In this comparison we would not look upon man as a mere machine, for there is that in him infinitely above machinery; but the comparison is good as an illustration.

FORCE CAN ONLY EQUAL FOOD.

If we do not have food we will not have power; and the amount of force evolved is in

direct proportion to the amount of food our digestion is daily assimilating, and converting into force. The food we eat is constantly being converted, by the process of assimilation, into the tissue of our bodies, and then used up as force, on the same principle that fuel is converted into force in the steam engine — the combustion of material — a union of food elements with the oxygen of the air we receive into our lungs.

THE CHILD AND THE GROWN PERSON.

If in the mature person, who has no growth to supply, so much depends upon the amount of food he is able to use, how much more important is a sufficient quantity of food to the growing person? The child, in addition to the waste of material consumed in force, has to supply material for the growth of his body and mind.

This growth is what the body of the child acquires after it has used enough of the food taken to supply the waste; though in some instances growth will progress at the expense of repair, and in such cases we see marked debility.

REPAIR OF WASTE AND GROWTH.

But if the food be abundant and the assimilation good, both the renovation from waste and the growth will go on harmoniously, and the child will develop in health, vigor, and energy. Let the quantity of food be too small, or its quality inferior, and immediately we see the growth checked, or the child shows a want of energy — is very much debilitated.

OVER-FEEDING AND UNDER-FEEDING.

Feeding our children too much, or feeding them too little, are alike wrong; we should strive to give them just enough; but if we err either way, it is better for them that they be over-fed.

Occasionally eating too much does far less harm than always receiving less than Nature requires; if we take the child's appetite as the rule and guide, we shall very rarely find them taking too much; especially when the appetite has not been rendered acute by an inadequate supply of food.

"Excess is the vice of adults rather than of the young, who are rarely either gourmands or

epicures, unless through the fault of those who rear them."

If we observed closely we should see that restriction was not for the best—that our reasons for so doing were incorrect.

CONTROLING THE CHILD'S APPETITE.

Too much denying the appetite of the young, by mothers and nurses, is far from right, and will lead to their giving loose reins to their appetites when they are free from restraint, even if it does not reduce the system too low to withstand the influence of disease. People are too much disposed to think that the appetite is not a correct guide, and that our children's love of eating must be curbed. We think they will surfeit themselves, and, if not controlled, eat dainties enough to cause sickness.

Now, this is true so far as it applies to dainties, and more true with those who are restricted in the quantity and quality of food they shall eat. But the child who has wholesome and nutritious food, and has it at regular intervals, and all he wants of it, will not hurt himself with dainties so quickly as the one who is pinched with short living.

NATURE GAVE THE CHILD ITS APPETITE.

The appetite was given by Nature, "too wise to err," and it was given for a purpose; and further, when it is gone the child has eaten enough, and when he has eaten enough it is gone—taken away by Nature. All living creatures have it; and when it is pressing it calls louder—is harder to be denied than any other of the physical or mental wants.

THE GRATIFICATION OF THE APPETITE BY YOUNG ANIMALS.

And it is gratified to the full by every animal except the child! The farmer knows his stock will do as well, yes, far better, when they are young, if he gives them all the food they want. Whose calves look the best, that farmer's who gives them one-half or three-fourths the food they will eat, or that farmer's who lets them run and take all they want?

Where is the farmer who would think of restricting the amount of nourishment his fine colt shall take when he is trying to make all he can of it? On the contrary, he turns him out where there is hay and grass in abundance; and

then tempts him to take more by giving him a dish of grain. And by thus doing he gets a finely developed colt, that grows to a large, strong horse; sound and full of energy.

WHEN AND WHO SURFEITS.

But supposing he checks his appetite, and giving him less than he needs to eat, and by chance he gets his head where there is a "dainty," or a variety to him, then he will surfeit himself; but never when allowed to have all he wants of that food every day.

Exactly so with the child. When his food has been restricted, or when he gets an article of food he has wanted for a long time, and not had, it is a dainty to him, and he will over-eat; while the child, whose appetite is gratified every day, and when it very much wishes a certain article of food has it, will not "let his appetite run away with him."

EXCESS A CONSEQUENCE OF RESTRICTION.

The most of these instances of excess in children are but the usual consequences of restriction — a restriction the system will not justify; they are sensual reactions from a form of rigid

dietetics. They illustrate a common remark, which is very true in fact, "that those who, during youth, are subject to most vigorous discipline, are apt to rush into wild extravagances." They are on a par with the fearful phenomena once so common, where the most austere monks and nuns would suddenly relapse into an extreme of wickedness. They are but exhibitions of the uncontrolable force of long pent-up desire.

THE LOVE OF SWEETS AND SUGARS.

There are many things in the tastes and desires of children that should be noticed and gratified, and among these we would notice the love of sweets and sweet food. How often it is denied, and any excuse—no matter how false in fact it may be—is used to keep the child from eating them.

We presume that most people think it to be only a gratification of the palate, and that in common with the sensual desires it should be denied. But physiology tells us that there is a thing or two more in the child's love of sweets than common opinion supposes; things quite reasonable to those who will use their judg-

ment. Sugar is so important in the animal economy that, when it is not fed to the child, the manufacture of it must be carried on in its body, and other forms of food reduced to sugar in the course of assimilation. Starch is thus changed; and the liver is a sugar manufactory when the system wants it.

THE ULTIMATE USE OF SUGAR, STARCH, AND FATS THE SAME.

Sugar, starch, and fats are ultimately used as producers of heat for the body. Now, if a child, as is often the case, will not eat fats sufficient for the purpose of keeping its body warm, it is perfectly plain that this love of sugar will supply a want in the child's body; and if it is gratified it will save the liver from over-work; it is perfectly plain that this appetite was given the child that all the wants of the body might be supplied.

ILLEGITIMATE GRATIFICATION OF THE APPETITE.

This is but a fair illustration of all of the child's appetites. When they are not legitimately gratified they will be in an illegitimate way, or the constitution of the child must suffer.

All have noticed how eagerly children will eat sour green fruit, as grapes, currents, or apples; and do it when to us—older people—it would be anything but a gratification to the appetite.

Here is the principle in this appetite: vegetable acids, as well as mineral acids, are tonic in their action, especially to young, growing bodies. Good, wholesome, ripe fruit is denied the child, when the system requires its use; so it takes it in any form.

FRUITS AND SWEETS THE CHILD SHOULD HAVE.

Fruits are the child's delight, and will be used freely when he can get them. But how regardless are parents of this appetite both for acids and sweets. These two dominant desires of the child's appetite, in which we can see a wise order of Nature, are in most families denied.

Children are not only deprived of sweets and fruits when they chance to see them, but they are not supplied with them at their regular meals—the only true time for any eating.

THE CONSTANT USE OF ONE KIND OF FOOD.

Bread and butter are used for breakfast, and bread and milk for dinner and for supper, in

many families, for the children; or perhaps the child's dinner is fried pork and potatoes, and perhaps it is fried pork and potatoes three times a day, among the farmers and laborers; but whatever the routine is, be it this, or some other equally injurious compound, it is rigidly adhered to morning, noon, and night, day after day, until the appetite is not only satiated, but disgusted with food that only provides one or two of the elements needed to supply the waste and growth of the little ones.

A CONSEQUENCE OF RESTRICTION.

The consequence of this is, when the child gets an opportunity to eat what its appetite craves, it will over-eat; and from this over-eating sickness comes.

This over-eating is the basis of the argument, that it will not do to gratify a child's appetite —that Nature's way of calling for what it needs is not to be trusted. Children fed on fruit at meal times, and on sweets, such as sugar, molasses, and sweetened breads and puddings, will have that want for candy supplied, and when they have candy there is no danger of their eating too much. Nor will the child who is

supplied with good, wholesome fruits at its meals, ever eat, or want to eat, those sour, unripe fruits, so unwholesome, and, to our appetites, unpalatable.

IN CHANGING THE DIET WE SHOULD CONTROL THE APPETITE.

All this interference with the child's appetite is wrong, except that which shall control it when there is a change from articles commonly used to a new one; but all these changes should be made with care.

Use the same intelligence in changing the food of your child that you use in changing the food of your horse. There is hardly a man so foolish as to change his horse at once from dry hay and oats to green grass and corn; but if your horse has daily had his corn for a time, and had enough to keep him from hunger, you do not fear that he will eat too much should he have an opportunity. Apply the same common sense to your child, and you will not fear to trust his appetite — he will never take too much — never use more than he has power to assimilate.

THE APPETITE GIVEN FOR A PURPOSE.

The appetite calls for what the body needs most, or has least of—what the digestive organs can best make into a material to repair the most rapid waste, or a pabulum for the growth of the most deficient part.

This appetite, which we call hunger, was not given us for naught, it did not "happen" so; but it was for the wise purpose of filling our stomachs with material for the growth and supply of our bodies; and can we not have confidence enough in the Creator to believe He adapted it to our wants? especially when we see He has done so for the lower animals?

A STRANGE INCONSISTENCY.

A strange inconsistency is that which believes that every animal may eat what it wants, and when it wants, and as much as it wants, except only the child—he only must be controlled.

Away with it! Let the child have the food he so much desires, and have it when and in the quantities he wants; only guarding him when it is a new dish—when it is a great change

from what he has been accustomed to. His hunger is not so very different from your own, and surely if you want an apple you will have it; or any other article of food for which you feel a strong desire.

Let all food be given at regular intervals, and often enough to prevent any strong feeling of hunger.

THE APPETITE THE ONLY GUIDE OF VALUE.

It is not only a fact that the reasons for trusting children's appetites are strong, and those for not trusting them based upon false views; but appetite is the only guide we have that is entitled to any confidence. Perhaps you say, you know how to feed the child — know how much he wants. But how do you know? Simply by his calling for food; and upon his cry of hunger you have based your knowledge of what he wants. No two children want just the same, in kind, time, and quantity, any more than any two children look just alike.

We have no secret understanding of the wants of the child's physical system — no clairvoyant view of his internal necessities. Then how can we know? We can only guess, and we may

guess wrong as easily as right. Nature does not depend upon guess-work.

OUR CONFIDENCE BETRAYS OUR IGNORANCE.

The confidence we assume when we are legislating for our children's stomachs only shows that we do not know what we are doing; if we did know we would not do it as often as we now do. "The pride of science is humble when compared with the pride of ignorance."

HUMAN JUDGMENT VERSUS NATURE.

Very little faith is to be placed in human judgments when we compare them with the acts of the Creator who gave these appetites to be the "rule and guide of our action" when we are supplying our bodies with nutrition.

If we would know how little confidence is to be placed in the judgments of men as we observe them, let us compare the rashness and egotism of the uneducated quack—and sometimes of the young physician—with the calm, assured deliberation of the studious and experienced doctor of mature age. How much more he sees in Nature to imitate—how much more confidence he has in restorations of Nature; and

he will only act in harmony with the Creator and Preserver.

THE QUALITY OF THE FOOD.

In looking at the quality of food the child should use, we shall find in many instances the same prejudices which exists concerning the quantity it wants. Many parents seem to think that a comparatively low diet is sufficient for the child; and that they do not need, and should not eat, much meat.

MEAT FOR CHILDREN.

In some cases the wish is father to the thought; the parent does not feel able to supply all the meat wanted in the family, and he reasons that the child does not work, and he says, "I labor every day, I need the meat, and he can play and study better without meat than with it." The argument used to the child who is putting in his claim for more meat, is "that meat is not good for children;" and it has been used so long that it is firmly believed by most of those who do not study this subject. But be assured this is only a dogma of the past age. Our children want meat—and need meat. The

system craves it. Nature gave them an appetite for it. It is not an acquired appetite. Meat is one of the first things an infant desires; and it is of easy assimilation.

MILK FOR THE INFANT.

The infant — not having acquired a strong muscular coat to his stomach — should only receive animal food in the form of milk, or of the extract of meat; as the solid substance needs an amount of trituration before it can be changed into chyme, or made fit for aliment. The infant's stomach has not strength to do this, and thus we have an anatomical reason for withholding solid nutriment from it. But this objection does not hold against the use of fluid animal food; nor does it hold with children who have acquired a fully developed muscular stomach, which we are sure to find in the healthy child of one or two years of age; for such a child will possess an amount of muscular vigor sufficient for using any form of animal food, rightly prepared for any stomach.

Thus, while this theory is not entirely incorrect in the case of small children, it is wholly

mistaken with regard to older ones — who alone crave much animal food.

THE CHILD SHOULD HAVE THE MOST NUTRITIOUS FOOD.

Yet we find they are quite as likely to be restricted in the amount they shall use. "The verdict of science is exactly contrary to this popular opinion." All learned physicians, and our most distinguished physiologists, uniformly agree that the child should have a diet not *less*, but *more*, nutritious than the adult, and have it in a form easy of digestion, thus economizing the force required for its assimilation, and leaving all the power possible to be used in developing the muscular and osseous structure.

THE CHILD'S VERSUS MAN'S VITAL POWERS.

These conclusions are arrived at by a simple comparison of the vital powers in a man with those of the child. We see at once that in man there is an amount of waste by visceral changes produced by the vital processes of life — by voluntary muscular efforts, as in labor — by waste of brain tissue, as in mental effort — and by combustion producing heat to supply the

loss by radiation from the surface of the body. Man's food must supply all these losses to keep the body from wasting away. In the grown man, then, we have only to make up the loss in "wear and tear," and supply the fuel to keep the body warm.

But how is it with the child?

He has also to supply the waste arising from the vital actions, and the voluntary muscular activities so fully displayed in restlessness that "never tires," which restlessness demonstrates that there is a much greater action in the child than in the man — that though he is much smaller, he wastes as much in muscular exercise as a grown person.

The child, too, loses heat by radiation, as the man does; and from the fact that his body is not usually as well protected as the man's, but legs, arms, and neck are frequently exposed, there is far greater loss of heat than in the man: and there is brain waste, also; for these little ones are all the time learning; never anything passes their notice without leaving its trace upon their brain; their mental activities fully equal the muscular. Thus we see that the child has the same wants to supply as the man, and from

their greater activity the waste is greater, comparatively, than in a full-grown man. Were these all, were there not another call upon the appetite for nutrition, the child would want as much as the man to keep an equilibrium of loss and gain. But besides repairing the body, the child has something new to make — has to grow, and that every day, if he continues to be healthy. After the waste of the body is made good, the growth is attended to; but the waste and warmth first.

REPAIRS FIRST, THEN GROWTH.

The child grows only when he uses more food than is required to repair the waste of the body, and keep it warm. This is the general rule; but as the exception we find growth progressing at the expense of repair; and in all such instances the child is weak — flesh flabby, with no strength, vigor, or energy. The development is not equal to the growth, and thus the tissues are of poor quality.

THE TENACITY OF THE APPETITE.

How peremptory is the appetite of this growing humanity, may be seen by observing the

almost ravenous desire of the school-boy — by remembering how our own appetites at that age impelled us to seek the pantry, or cupboard, or cake-basket, because we could not wait until meal-time came. Every one in grown-up life has thought that "never any one did or could cook as our mother did," forgetting that a "good appetite always made a good dinner."

That the child needs the best and the most frequent nutrition is further proved by the fact that in all famines the children are the first to die.

THE CHILD SHOULD HAVE PART CONCENTRATED FOOD.

Admitting, then, that the child needs relatively more food than man, the next question that comes up is, shall we meet it with a greater quantity, or with a more nutritious quality? Shall it be diluted or concentrated in form? The nutriment that the stomach can assimilate from a pound of beef cannot be obtained from a pound of bread, potatoes, or vegetables; but for the same amount of nutrition a much greater quantity of these articles will be required. Now, shall we give the child two pounds of bread, three pounds of potatoes, or several

pounds of vegetables, or shall we give it one pound of meat? The answer is, neither alone, but part of each. That is, do not restrict the child to a meat diet; and, *above all*, do not restrict it to a vegetable diet, but give it a mixed diet—just what a healthy child's appetite will call for. The child, needing more food in the ratio of size than man, must expend more vital force in digestion. Now, shall we increase this expenditure of vital force, by providing a dilute vegetable food alone—difficult of digestion; or shall we give it, in part, animal food—more concentrated, and of easy assimilation? The answer is one that comes readily enough from all who have taken time to consider these questions, as they have the raising of colts, calves, and pigs. To these they always give the variety that comes from the best field of grass, or from the best coarse fodder and grain. They have a mixed diet, but the *best* of the mixed diet. Do this same way by your child, and you will do right.

VITAL FORCE USED IN DIGESTION.

In the digestion even of the most easily assimilated food, a large amount of vital force

is expended; and to the child, who must digest so much, it is of especial consequence that its food be easy of digestion. The less vital force expended in digestion, the more there is to expend in other directions, mental or physical.

"LABOR LOST."

When nutriment is taken from innutritious substances, a much greater labor is performed by the child; which is "labor lost" that might have been saved had the child received concentrated nourishment, such as is found in animal food. This loss is shown in a smaller growth, or in diminished energy, or in both. Then we say, feed the child on food that combines a large proportion of nutrition with facility of digestion.

CHILDREN MAY LIVE WITHOUT ANIMAL FOOD.

We do not doubt but boys and girls may be, and are, brought up upon an almost exclusively vegetable diet. Among the better educated classes we find the vegetarian, and in some of the poorer classes we find now and then one who uses no animal food; and yet they thrive, and grow, and appear to have good health.

It is not a very uncommon thing to find a healthy maturity in the country, among the English people; and among the children a good growth, where no meat is used. But these are the exceptions, and have, by no means, the weight commonly given them. Their development is not a fine one; it is coarse and soft, not hardy, firm, and full of the energy of childhood.

MEAT AND ENERGY.

These bread-and-potato-eating children, if they arrive at manhood, are not the ones who develop the active energy that "moves the world"—that contends successfully with adverse circumstances, and always conquers; they are the very contented ones, who take life as it comes, and are not disturbed if it has "no blessings for them." They will "never set the world on fire," or put it out when our meat eaters have fired it.

THE QUESTION IS NOT ONE OF SIZE, BUT OF ENDURANCE.

Here we see the question is not one of size or comely proportions, but one of active endurance. The soft, flabby flesh may make as good a show,

when inactive, as the firm, wiry boy or man, to the eye of the careless observer; but when we come to an active life of competition, the strength will be tried, and the difference will be proven. The fat man is not the strong man, and this is especially true of the child.

In the army, the lean, muscular soldier always out-wore the obese one—could march further any hour, and many more hours in a day

The energy of the meat-eating child who has his appetite gratified with other foods as they are wanted, as well as with meat when it is wanted, will ever outstrip all potato-and-bread-eating children, and in physical force to sustain that energy.

THE CHILD WHO HAS ANIMAL FOOD IS ALWAYS "AHEAD."

The eater of animal food is always "ahead" in everything but "casting a shadow." We may feel sure to win, if we bet on his superior mental and physical vivacity. Concentrated nutriment always increases activity.

VEGETABLE FEEDERS HAVE LARGE ABDOMENS.

Every child who eats enough of innutritious food to keep up his growth will have a large

abdomen, as much more room is required to receive the large bulk of food from which to get the nutrition necessary. This fact is seen in animals as well as in men.

THE GRASS-FED HORSE.

Take as an example the horse fed on hay or grass alone. It has so large an abdomen as to be incapable of active exercise; and all who are acquainted with the animal, know that it is not fit for active duties — will only travel at a moderate pace — has no energy — does only what it is obliged to do, and is content in any position of ease.

THE GRAIN-FED HORSE.

Take this same horse and feed it with a concentrated food — as grain — for a time, and how changed is the animal!

Draw the reins over this grain-fed horse, and it will travel with an energy that you will need to overcome instead of urging. The abdominal viscera are reduced in size, and the *development* of the animal is good, fine, and wiry.

Why this change? Simply — as you know — by a change from food coarse and innutritious

to that in a more concentrated form. This concentrated food for the horse is easily assimilated into nutritious elements, in making good and strong tissues, and into nerve tissue that gives the horse energy, which is worked off in physical force, and not all used up in extracting its quota of aliment from coarse food.

ACTIVITY OF ANIMALS DEPENDS UPON THE KIND OF FOOD THEY USE.

We may go further, and compare the activities of animals who feed on food of different degrees of nutritive quality, as the herb-eating sheep, with the dog that feeds upon animal and farinaceous food, and we see the same kind of difference.

Walk through a menagerie and compare the stolid quiet of the herbivorous animals with the restless activity of the carnivorous; the one sleepy and docile, peaceful and slow; the other restless and impatient, powerful and courageous, ever ready to do anything but — keep still. The one uses dilute nutriment, and must have a large bulk to supply its wants; the other uses concentrated nutriment — easy of digestion. That this difference of activity is not from a

difference of constitution—or original make-up of the animal—is proven by the example of the horse; it being changed from its dull slowness to an active animal merely by changing its food.

It is also proven by the different races of men. The low physical development and want of energy of the Bushmen is owing, in great part, to his diet of herbs, roots, and berries, and other miserably poor fare. They are puny in stature, with very large abdomens, and soft, undeveloped muscles. They are quite unable to compete with any nation, either in a short struggle or an enduring contest.

Notice the feats of the man who has been in training for an exhibition of great strength, and compare him with those using the fare of ordinary life. He endures very much more than he could without this training; which is but feeding the man upon the same principle we would feed a horse whose utmost strength we wished to use without injury to him. It is only concentrated food at regular intervals, and enough of it, with steady exercise.

BEEF VERSUS WAR.

Observations from history tell us that those armies which are fed upon animal and concentrated food have been the most successful; as seen in the English army, eating largely of flesh, who were far more efficient than the continental armies, who used a less nutritious food, with very little meat.

In our own age we have the late Rebellion as an example; when the best fed army was the one always victorious, other things being anywhere near equal. It has been said by good judges that the success of the Northern army largely depended upon its beef. That this success was not alone from the people, or soldiers, as a race, but that beef did have some effect, is proven by the fact that the Southern army was the most successful when it had the most beef. This difference of diet has ever been one of the strong points in the *regimen* of armies; and when a contending general learned that the opposing army was running close on its rations—that they were using a coarse diet—and had no concentrated food, he knew his success was only a question of time, even though

they had an abundance to keep from hunger and starvation.

AN EXCLUSIVE MEAT DIET WRONG.

Do not think that we use these arguments to prove that an exclusive meat diet is proper. Such a course would be equally erroneous; but we would have a medium line followed, in feeding our children and ourselves, observing the true guide, given us by the Power that made us and placed us here—and that knows perfectly all we need for health and development. A healthy nature calls only for what it wants or needs.

AN ANATOMICAL ARGUMENT.

There is an anatomical argument in favor of a mixed diet, seen by all who have studied it, and answered by none; and it is that the development of the digestive organs shows that man was designed to be omnivorous. They partake, in form, of the organs of omnivorous and herbivorous animals—they have apparatuses or organs for obtaining nutriment from vegetable and animal food, which is not the fact with those animals having an appetite for only one of these varieties.

The teeth and the motions of the jaw show the same. Here is an argument—taken with the appetite for variety—powerfully in favor of our eating animal as well as vegetable food, and to this argument there is no answer.

How any one can see all this adaptation to a mixed diet, and still think man made only for a vegetable diet, we do not see. There must be a want of faith in the wisdom of a Creator, in the one who, knowing the conformation of our digestive organs, believes that man should not eat meat as well as bread. If a special form of diet was intended, as for animal food, we should have had teeth and motions of the jaw especially adapted to masticating meat; and if we were only to eat vegetable food, we should have had teeth and motions of the jaw especially adapted to grinding vegetables and cereals, or the wisdom of a Creator would not be indicated. In all other organs and combination of organs, we see a special co-adaptation of means to the end, and why not here?

SOME CONCLUSIONS.

This evidence, we think, distinctly proves that a concentrated food is best for man and best for

the child. It also shows that though the child may continue to grow, even to full stature, on a vegetable diet, that the quality of the tissue will be greatly inferior—that the energy of the child—and the man after the child—will be far below those fed on animal food. It proves that though the child, of whom little is expected, may do tolerably well on a food free from animal substance; yet the boy or girl of whom much is expected, either physically or mentally, must live on substances containing a large proportion of nutrition, or we shall be disappointed in his physical growth, or in his mental capacity, in his physical activities, or in the quickness of his mental perceptions. It is an obvious fact that the denial of animal food to the child will be at the expense of the repair of the waste, thus preventing a fine development; or it will be at the expense of the growth, thus making him inferior in stature; or at the expense of energy, thus making him a cypher in the world, or it may be at the expense of his intellect; and perhaps all of these will suffer. We believe no one who looks this subject over fully and freely will see it in any other light. To believe differ-

ently is to accept of the fallacy, that something can be obtained from nothing.

A VARIETY OF FOOD FOR THE CHILD.

A few words must be said upon the variety of food for children. Like man, they want a variety, and will thrive better in body and in mind if they have it. The satiety of an often-repeated article of food is known to all who have the care of children, and all know the keen relish that belongs to a new article of food.

The gratification of the palate is not a meaningless pleasure, but it tells, and tells strongly, in favor of a change of the food. It is an incentive to a wholesome change of diet. The fact is fully established that there is no one article of food — no matter of how good qualities — that has the proportions of nutrition in it which the child needs at all times; and for this reason the appetite is given for another article that will more agreeably fill a want that the last variety of food did not meet. The enjoyment of a meal awakens much nervous energy, which increases the action of the heart, propelling the blood with added vigor, and thus aiding the digestive processes.

A VARIETY AT EACH MEAL.

The same reasons that would demand an occasional change of food call for a few different dishes at each meal. The more perfect the balance of ingredients, the greater the stimulus applied to the various forces of the body. In proof, notice how complacently the stomach of the grown person will digest a very large dinner made up of a great variety of dishes, as compared with the digesting of a large dinner made up of one dish only. Few will think that an equal amount of well-cooked food of one variety can be digested with as much ease as when it is made up of several kinds.

HOW TO HAVE MEN AND WOMEN OF WORTH.

Then do not think it too much trouble to give the child a variety, and to let that variety be what suits his appetite—his sense of what he is in need of. If you want strong, healthy, children, whose minds shall be capable of grappling with the truths of science as they unfold —if you want children who will leave their impress on this world, and "act well their part in life's drama"—who will not be drones

among their fellows — who will lead instead of being led — feed them a mixed diet, and let a large part of that mixture be animal food; and do not forget to consider their appetite of some importance.

CAUTIONS.

A word of caution is here necessary. No change should be made suddenly from one article or class of articles of diet to another, especially in changing from a low diet to a higher. The low diet has reduced the vitality and increased the appetite to a degree that cannot be trusted in a grown person, much less in the child. Whenever the vitality and energy are low, the transition from poor to better fare must be gradual, and as each step of strength is gained, a step further may be taken in the better qualities of the food.

From the fact that as a people we are inclined to extremes, a word of caution is necessary against carrying this concentration of food too far. We are too much inclined to be vegetarians, or we get too far away from vegetables. A wholesome medium is what we should come at; and a healthy child's appetite, which has

not been tampered with, will call for this medium, and be satisfied with it.

Paying due regard to these cautions, and feeding the child only at stated times — which shall be frequent enough to prevent hunger — our belief is that the child's food should be highly nutritious — as largely animal as the appetite calls for — should consist of a variety at his meals, and that variety again varied at successive meals, and that it should have as much in quantity as it wants.

CHILDREN SHOULD EAT WITH FREEDOM.

How children should eat is a point of importance; for, in short, the manner of eating has largely to do with the digestion and assimilation. A good rule, in a few words, is this: Eat slowly, at regular times, and with cheerful unrestraint. If they are allowed their liberty at the table — if they are let alone — they will always eat with a freedom of conversation, and merry fun, that is a sure and wise preventive against fast eating. Jokes and pleasant conversation are a much better exhilarant than wine or any other form of stimulus; and yet many parents, from a mistaken notion that they must

instill into their children sobriety and propriety, so hamper them with previous instructions to eat like men and women, that at the dinner-table they dare do nothing but eat, and thus they eat too fast. The dinner-table ought of all places to be the scene of the enjoyment of freedom and happiness — of gladness and mirth. To tyrannize over children when eating is against good common sense. Leave them to their instincts — to their happy mirth and natural joyousness — and to their busy chatting, and you may be sure that they, like the hireling, will eat a long time; much of it being spent in the enjoyments connected with eating, instead of bolting their food.

LET CHILDREN EAT TOGETHER, AND NOT WITH GROWN PEOPLE.

Let children eat together, and then there will be less disposition to curb their activities; but if they are put at the table with grown people, there is a tendency to check everything but mature propriety, and when the activities of life are checked in one direction they burst out in another, and the child eats too fast; as that is the only thing he is allowed to do; and this

fast eating is one of the principal causes of over-eating, in men as well as in children.

DO NOT TEACH ETIQUETTE TO YOUNG CHILDREN.

Do not attempt to teach your children all the rules of table etiquette, and then command them to live up to them. It is a cruel task for any young child to keep still. He was never made to sit like a ramrod, straight and stiff, but wants to eat and wiggle—and eat and move—and eat and chat—and eat and laugh; thus rendering it utterly impossible for him to eat too fast, and do all those things he so much likes to do when unrestrained.

Suppose an accident occurs at the table, and a tumbler is broken, or a spoonful of sauce goes anywhere but to the child's mouth; suppose the table-cloth and his napkins are soiled, it is of no consequence when put in comparison with soiled digestive organs; and a rapidly-swallowed dinner is sure to stain the purity of the digestion—is sure to weaken the process—and, if followed up for a time, will surely make a case of dyspepsia. Eating was designed by Him who gave us appetites to be a season of enjoyment.

CHAPTER V.

Food and its Elements.

FOOD FOR INFANTS.

MILK is the only safe food for infancy; and it should be received from the mother, if possible. Nature has provided the mother with breasts; and has so ordered, that when an infant is brought into a separate life from the parent, those breasts secrete a food just adapted to the wants of the child. In this food we find just those elements that will fill every variety of demand in the system of the little one.

A PIECE OF HELPLESS HUMANITY.

This little helpless piece of humanity — the most helpless when born of any of the offspring of the animal kingdom — the most dependent

upon others for its every want—can in fact do nothing for its maintenance except to breathe. It has not the instinct of care, and will perish if no kind, human soul contributes to its necessities.

If Nature has made the dependence of the little infant upon others so great, and at the same time has provided a way for feeding this mite of life and supplying its wants, ought not its parents, who have brought it into life with all its feebleness, to follow her in the way she has provided?

CARING FOR OUR OWN CHILDREN.

What is the conclusion at which we must arrive as to the propriety of bringing children into this life unless we intend to care for them—and not only intend to, but are prepared to, and will do it? Mother, can you wilfully bring a child into life and then leave it to the care of one who has no love for it—to be fed and caressed only by a nurse? when you are the only one who will love it—and the only one who can love it as Nature designed it to be loved, with the "milk of human kindness"?

MOTHERS SHOULD NURSE THEIR INFANTS.

We have no patience with those parents, who, having given life to a child, are so lost to the tenderness of a human life — of all animal life — as to desert the "flesh of their flesh," and provide a hired nurse for their infant, feeding him on food from a stranger — parents who will originate a child, a part of themselves, and let it grow up a part of some one else. Such a child, at the close of the nursing months, is not flesh of its parents' flesh — it is only partly their child.

Its physical life may be far different from what it would have been had it been nursed at its mother's breast, and taught upon her knee.

We dote upon a child as ours; "there never was a child like this." Then let it be ours through all its tender years. While it must have the food and care provided by those able to provide, let it receive it from its own parents as much as possible.

IF WE NURSE OUR OWN THEY'LL BE OURS.

Then, as it grows up it grows up our own — what we have made it. It has no foreign

element mixed with the "blood of our blood;" and its early taught lessons have been learned from us. All it is, and all it is to be, is ours, both by entailment and teaching. Then, if it is a "never was such a child," we may claim the thanks.

IF WE DO NOT NURSE OUR OWN THEY'LL NOT BE OURS.

On the contrary, our child is born and its inheritance is from us—its father and mother; then it passes into the hands of a nurse, and its growth is not ours—it is an introduction of the elements of a third person into what we claim as our child. Such a child is not the child of two loving parents, but of two parents and a third or "step parent," who has, from her own blood and body, provided nutrition for the muscles, bones, tissues, and nerve cells in all their growth since birth.

Previous to conception it was a part of its mother and a part of its father. In its fœtal life it was a part and parcel of its mother; and thus, all there is of a child at its birth is derived from its parents; but in its nursing life it is learning and growing from a "third par-

ent," and all it grows and improves during its infantile life, if nursed by another than its mother, is not ours, but is of the one who has fed it from herself: it has drawn its support and life, not from a maternal fountain, but from this "step parent."

Proud mother — you who feel so much that your infant is all your own — if you wish to keep it yours, and that it shall be only "of you," all your own, never let another take your place in the duty you owe that infant.

PARENTS THE CAUSE OF THE CHILD'S LIFE.

You who have given it life and being — a life that will live "forevermore" in some state of existence — a life that has come without any volition of its own — you should feel that nothing in heaven above, on earth, or in any other place, has a prior claim upon you. Until you thus feel you are not ready to become a mother — are not ready to give a life that has so helpless a beginning. A father is wrong in being in partnership with such a woman in causing life. A just Heaven will hold parents responsible for giving, or causing a life to be given, as well as caring for it; and I know no greater

crime than to bring beings into life when there is no way provided for their bodily welfare, for their spiritual and moral instruction; beings who must contend for existence without the love of parents, and without the teaching that shall give them a chance to compete in this life with all that may chance to cross their path, and a moral instruction that shall insure a future state of reward. Is it any worse to take life than to give a life under such circumstances? or, if you object to the word "give," to be the "cause of its being given"? Ah! there is many a man and woman who can *truly* say, "it were better had I never been born," when the failure was not *all* their own.

These are thoughts worthy of being considered with the greatest care.

MILK IS FOOD PREPARED BY NATURE.

But from this digression we will now return to the food prepared for infants. We say it should be taken from the mother's breast, every time, and all the time. The mother who has nourished her child with her own blood, made good and wholesome by the food she has eaten, digested, and assimilated as a part of her blood

through the nine months of fœtal life, should not now, at the most critical time in its life, desert it, but should continue to nourish it with the milk from her breasts, made by them from her blood, which is made good by food she has eaten, in just the same way as her blood was made nutritive while yet the child was unborn. Make no change. If you are fitted to become a mother, you are fitted to become a nurse, and in all maternal cares to look after your child.

THE "WET NURSE."

There may be circumstances when a mother can not nourish her infant, although there ought not to be. In all such cases, supply the infant with food which is nearest like the mother's breast; and this will be from the "wet nurse," one of good health, good moral character, and good temperament, with a fresh and recent breast of milk. It is much better when we can find one whose infant is of about the same age as the one to be supplied with food.

Be very careful as to the health of the nurse, and that she is not passionate; for these passions may be impressed upon the child that is to be nourished, and if nourished, taught by

every look, tone, and gesture, as well as by precept; and thus may partake of her prominent characteristics.

"THE BOTTLE."

Next to the wet nurse comes the bottle, filled with cow's milk, which in early infancy should be reduced with water about one third, and always sweetened with the best white sugar. The mother's milk is much sweeter than that from the cow, and this loss of sweetness must be made good, or the child will suffer with cold.

We believe that there is too much reduced milk used, and that the child of two or three months' age will do better on undiluted cow's milk. Observing the effect of reduced milk, as compared with that which is unreduced, will be the surest test, as all children are not alike in digestive ability; and the cow's milk is not Nature's food for the infant, but Nature's food for the calf, able to walk from the day of its birth.

THE TEETH SHOW WHEN TO GIVE SOLID FOOD.

The question is often asked — how old should an infant be before it is fed? As the teeth

are formed, Nature shows that it is ready for another form of food — that which is solid enough to give them use according to their development. As they show themselves, we may gradually change from an exclusive milk diet to food of more consistence. This change should be little by little; first mixing a little flour or extract of meat with the milk food, and on to a little of the fiber of animal food, both lean and fat, as the child's appetite seems to want it, or choose between it and other forms of food; and by the time the child is one year old it may eat all kinds of meats, and farinaceous food, that are plain, and not too recently prepared.

DRINKING COW'S MILK.

But at this age the child will find a sure and excellent form of food in the cow's milk. Let it have all it wants, and when it wants it — in its pristine newness and strength — being sure it is milk from a good, healthy cow, and not one-third milk and the rest a compound sold in cities for milk. The child that craves fruit, from this age on, should have it, for it is but the call of Nature for its needs.

DISLIKING SPECIAL ARTICLES OF FOOD.

If a child dislikes some form of food that is known to be healthy and wholesome, especially if it is a hereditary dislike—one or both parents disliking the same—its use must be followed up with care; and if the child can be taught to like it, so much the better; if not, substitute for it some other articles that will supply its place.

WHEN TO WEAN AN INFANT.

The length of time a child should be allowed to nurse is a question of importance; and its answer must be qualified by the health, strength and robustness of the child, and upon its powers of digestion. If the infant is healthy, and will eat all the food it seems it should eat, and digest it well—if it seems to depend more upon its food than upon the breast—then it should be weaned at one year of age, unless that time comes just before or during the hot season. It is always safest not to wean an infant during the trying heat of our summer weather. It is too great a change for the digestive organs, while they are debilitated by hot

days and nights; a fact of which all are conscious. If the infant is not thus healthy, or does not eat well, it is better for it to nurse for six months or a year longer. The infant must learn to eat well, and show a desire for food, before it is ready to lose its native nutriment.

MILK IS A MIXED DIET.

"In the case of infants and children, where the food subserves the double purpose of maintaining activity and growth, there must be extra provision in the diet for the development of muscular and bony tissues. Milk, though a liquid, by its abundance of suets and casein, is adapted to this end. But too frequently, after weaning, the food of the child is given with no reference to this important condition. Sago, tapioca, arrowroot, and jellies, which rank lowest in nutritive value, with perhaps other substances less objectionable, but still inadequately nourishing, are frequently made use of to the serious injury of the growing constitution." This observation of Huxley urges us to use a mixed diet for all children; as well the infant just weaned as the older growing child.

SHOULD EAT AT REGULAR TIMES.

Let the infant, and the child, take its food at regular stated times. Arrange those times as you may think best, at either once in three or four hours; but let it be systematic—at just these times every day, and at no other. All the involuntary actions of the body are rhythmic, and we should learn from this fact, that the digestive organs could better act upon food, and that all voluntary actions of the body would be more exact, if their time of recurrence was regular.

Let the child, in its earliest life, acquire one of the first of all physiological principles—regularity in work and rest. There is just the same amount of time in each revolution of the earth. Divide this into equal parts, and use always such ones for exercise, and certain others for rest; and at certain periods take nourishment, and at no others.

A VERY FOOLISH MOTHER.

But do not be as foolish as a mother we knew, who nursed her babe only three times in the twenty-four hours, and would feed it

nothing else. She said "'twas no use feeding babies oftener than she fed herself;" and soon she had no infant to feed.

Though she was often told of the consequence of her course, she thought she knew better than the "most learned." This mother was a vegetarian, and did not feed herself upon sufficiently nourishing food. She nursed her child as often as she was able to do it, and live upon such a poor quality of nutriment. She took the life of her child, but she did it in ignorance —an egotistic ignorance that would not be taught.

DO NOT NURSE AN INFANT WHEN IN A PASSION.

Never nurse a babe while in a passion of anger, or when any of the passions have been in recent active exercise. An active passion, especially when it has been more than usually excited, may have an effect upon the milk that will leave an impression on the child, and may make him sick at the time.

FOOD DIVIDED INTO GROUPS.

Food, in its nutritive properties, is divided, by our more recent and practical Hygienists,

into four kinds or groups, viz.: Proteids, Fats, Amyloids, and Minerals.

PROTEIDS.

This group of the elements of nutrition is composed of Fibrin, which is best represented by lean meat; Gluten, which has its type in bread, it being the gluey or adhesive property of the flour; Albumen, which is fairly represented by the white of an egg; and Casein, which is the curd of the milk, or that part made into cheese. There are some other unimportant elements in this group, but these are sufficient for our purpose, which is to explain the nature of food.

FATS.

These are found in the composition of both animal and vegetable food; but from whatever source they come, they have a similarity of composition. Like other forms of food found in the animal and the vegetable kingdom, they differ in external appearance and in physical properties, but are capable of replacing each other for purposes of nutrition; and the resulting chyle, chyme and assimilation are the same.

AMYLOIDS.

This group is composed of Starch, Sugar, and gums, which are principally derived from vegetable products, such as the grains, potatoes, peas and beans; and, in one or other of these three forms, are largely used for nutrition by all animals. Starch is a principal ingredient in wheat flour, corn meal, and potatoes. Sugar may be made from the animal and from the vegetable; but our chief supply comes from the vegetable kingdom, where it is found in saps, seeds, and in fruits.

HOW THESE GROUPS OF FOOD ARE USED.

The office of these groups of the nutritive elements is to supply the various wants of the system of the animal. The proteids are the proper tissue makers — being readily convertible, and used for repairing and building up the various tissues of the body. They are the nitrogenous elements, and are very nutritious.

The fats and the amyloids are the non-nitrogenous elements. As these last are largely composed of carbon and hydrogen, they were supposed to be exclusively used for producing

heat for the body. That this is, in the main, a fact, is still believed; and we think that these are the various uses that each division of food elements is put to, when food is eaten in a ratio that will fill the various calls or wants of our bodies.

But in addition to these, the proteids, while they are used for the making and repairing of tissue, must produce heat in their decomposition; and the fats and amyloids, while they produce heat, may produce force. A peculiarity of these groups of food is, they can only be obtained by the activity of living beings, either animals or plants.

MINERALS.

The fourth group is the minerals. These are the inorganic elements, as water, and the various salts. Water forms far the larger part of our bodies, and must be used in some form every day. The salts are very numerous and common, as the common table salt, the chloride of potash, phosphate of lime, etc.

A VARIETY OF THESE GROUPS IS BEST.

The food of man and child should be a mixture or a combination of all four of these groups of food elements. That which Nature has provided for the infant animal, as well as the infant child, is thus mixed; and by preparing it for those unable to prepare for themselves, Nature declares it is best for the use of the child. Now let us take a lesson from Mother Nature by analysing this milk, and so know what she thinks is best.

THE ANALYSIS OF MILK.

Having analyzed it, we find it is composed of casein — one of the first or proteid group, used for repairing tissue — about four and one-half per cent.; of butter — one of the second group of elements — in a proportion of about three and one-fourth per cent.; of sugar — one of the third group, used for supplying heat — about four and one-half per cent.; and of salts — of the fourth group — about one-half of one per cent. The rest is water, which is also of the fourth group.

This is the food of the growing infant, pre-

pared by that Wise Hand who made humanity, and knows its wants. Here we have the variety—not to be found in vegetables alone—not animal food alone—but in a union of the two—a union in most instances called for by the appetite.

MILK AND SOLID FOODS COMPARED.

We do not find this composition of elements in any other article of food. There is usually one or more of the elementary groups absent. The various meats abound in tissue-making elements, but are deficient in starch. The vegetables are rich in starch and sugar, but are wanting in the tissue-forming properties. Bread has the tissue-forming property and the amyloids, but is deficient in fat.

From this we see how necessary it is to vary our diet, if we would supply all our alimentary wants.

THE SOLE USE OF ONE KIND OF FOOD.

"Confinement to a single alimentary principle, or any class of them alone, is sure to be followed by disease." The proteids are of the most importance, as much the larger part of the

body is derived from them, and when they are used as an exclusive diet will sustain the power of life longer than any other class of elements. This is shown in the fact, that when they are withheld, and fats, starch, sugar, and the minerals supplied abundantly, exhaustion follows very rapidly.

Still the fats and the amyloids are necessary, and the body will feel the want of them sooner or later, even though the proteids are furnished in abundance. Certain forms of disease are sure to follow the withholding of any of the common varieties of our diet for any length of time. Deprive the child of vegetables for a season, and he has scurvy. Deprive him of fats, and he will have scrofula. Dr. Carpenter, in his Physiology, says: "The deficiency of oleaginous matter seems to lead to the development of the scrofulous diathesis."

EXCESS OF EITHER FOR A LONG TIME.

An excessive use of either for a long time, with a diminution of the other varieties, will also produce disease—as an exclusive diet of the proteids will of a surety cause a gouty or an arthritic diathesis; an excess of fats will pro-

duce a bilious habit; an excess of the amyloids will tend to a rheumatic habit, especially if the amyloid class is composed of a poor variety of vegetables.

WHO CAN LIVE ON ALL ANIMAL OR ALL VEGETABLE FOOD.

Though the digestive organs, and the teeth, show that man was made for a mixed diet, still in the extreme north, where there is perpetual cold, many tribes live entirely upon animal food; and, on the contrary, in the torrid zone we find many races living entirely upon a vegetable diet; and only in the more temperate zone do the people live on both animal and vegetable food in a fairly mixed proportion. These animal eaters of the frigid zone do not acquire the scurvy as readily as is done by those who live in a temperate climate. This is from the fact that they need so much more "combustible food," to counteract the extreme depressing tendency of the cold in those countries. A long-continued abstinence from animal food will produce the scurvy, contrary to the preconceived opinion. This disease is quite sure to follow a long continued abstinence from any one of the

elementary classes of food, by those who have been accustomed to a variety.

ANOTHER DIVISION OF FOOD.

For convenience, food is divided into three classes. They are: Animal food, Vegetable food, and Auxiliary food. Those classed as animal are milk, eggs, and meats, including fish.

ANIMAL FOOD — MILK.

Milk has already been in part described. The percentage of the different elements there given was an approximation of average cow's milk. The milk of goats and ewes is richer than the cow's in solids; and human milk is weaker in casein, and has a larger amount of sugar. In cities, milk is largely adulterated with water, and often with other substances.

BUTTER AND CHEESE.

These are the nutritious parts of milk in a very concentrated form. Butter is habitually used as an accompaniment for bread and starchy foods that are deficient in fats; and is a help to the digestion of such food. Cheese is a very nutritious form of food — containing almost

entirely tissue-making elements, and is very wholesome; but it should be used with a less concentrated food.

EGGS.

These contain the tissue-making properties and the fatty elements. When properly cooked they are very good food, and agree with most stomachs; yet, as they contain none of the amyloids, they should be eaten with foods that supply them, as bread and vegetables.

MEATS.

From whatever animal this food is taken, it is found to be essentially the same in nutritious qualities; that is, one can readily be made to take the place of another. Like the egg, they all contain the tissue-forming elements, combined with fats; and do not contain starch and sugar. As an article of diet their advantage is in offering a large amount of highly concentrated nutriment in a form easy of digestion, and of ready assimilation, when properly cooked.

"Stall-fed Beef" and "Corn-fed Pork," when free from disease, and of a medium fatness, are very healthy and economical food; but as they

are highly concentrated, and contain none of the amyloids, should be eaten with bread, or with potatoes, or other starchy food. The muscular fiber should be firm, and of a pale reddish color, somewhat lighter in the center than on the surface, and showing no disposition to tear across the fibers. The fat should be white, or but slightly yellowed, and firm to the touch. The pale, moist color marks the young animal, and the darker color shows the animal to be older.

All meats should be free from disagreeable odors, and when cut across should show a uniform appearance. Salt meats are not as nutritious, and have not as pleasant flavor, as fresh; nor are they as easy of digestion.

FISH.

Fish are very similar in compositions to meats —are rich in salts—the fourth group; and not as rich in the first or proteid group. They are of easy digestion when fresh; but as they are liable to rapid decomposition, should be eaten soon after being taken. Salt fish, like salt beef and pork, is much inferior to fresh, and much more indigestible.

VEGETABLE FOOD — WHEAT

Of all the varieties of vegetable food, those derived from the grains are most important; and among these, wheat ranks first in nutrition and ease of digestion. With the exception of milk, it is the most perfect form of food, and will support life longer, and in a more perfect state of health, when used alone, than any other. It is composed of all of the four groups of aliment, though the third — fat — is in very small percentage; and it has a very small amount of water. The coat of the kernel, immediately below the husk, is rich in gluten or vegetable fibrin, and in the center is found the starchy part. By the process of grinding, this glutinous coat, lying next the bran, is often lost by passing with the bran; and as it is of a darker color, the center that is left makes a whiter flour for the loss, though the loss takes the most truly nutritious parts. This loss ought to be avoided.

INDIAN CORN.

Corn contains more fat than any vegetable food in common use, and it is also richer in

starch; but it has less of the tissue-making elements. Articles of food made from corn should be cooked for a long time; and then it makes a very healthy food both for grown persons and for the child, especially when they do not eat much meat.

PEAS AND BEANS.

Peas and beans are very much alike in their composition—are rich in all the nutritive elements, and more directly adapted to supply the wants of the brain and muscle than the other varieties of food. They are hard of digestion, and should be eaten in small quantities, and thoroughly cooked.

SUCCULENT VEGETABLES.

Of these the potato ranks first, and is most extensively used. They are composed of the third and forth groups of elements, and owing to their deficiency in the tissue-forming elements, should be used with some of those articles of food that contain the first and second groups, as in the case of those who use them with meat.

Turnips, beets, cabbages, and the other varieties of this class, are of but slight nutritive value,

and are eaten more as a relish than a strength-giving food. They are valuable in costive habits, and are almost entirely water.

FRUITS.

Fruit consists of water and a varying amount of sugar, with a small quantity of the salts united with some of the organic acids.

The juices contain an amount of gelatinous substance that causes them to jelly. The value of fruit depends upon its quality of taste more than upon any nourishing or strengthening power. They are valuable for their alkaline and earthy carbonates, and very useful, when eaten in moderate quantities, as safeguards against constipation. They are most wholesome when cooked, but the seeds, skins, and cores should be rejected.

AUXILIARY FOOD.

Auxiliary foods are those used to give relish to other food compounds — to give a stimulus to the digestive and nervous systems. They are useful when used with care, but in excess are often very injurious. They are the condiments and beverages in common use.

CONDIMENTS.

Among the condiments are included vinegar, pepper, mustard, and their compounds. Vinegar, by increasing the acid of the stomach, may assist the gastric juice in digesting the proteid form of foods. Pepper is a powerful stimulus of the stomach, and will increase the amount of gastric juice secreted; and also the flow of the saliva. Its habitual use cannot be recommended; and if it is used at all, only the smallest quantities are allowable. The same may be said of mustard; its effects are very similar to those of pepper.

Children should not be allowed to acquire a taste for them, and they have no natural appetite for any such heating stimulus.

BEVERAGES — TEA.

The most common beverages are tea and coffee. Tea has been so long in use in this country that it seems to be an indispensable article of diet. It acts as a gentle stimulus, and does not leave a corresponding depression. It increases the action of the pulse, and the amount of carbonic acid thrown off by the lungs. Though

slightly astringent, it is not enough so to produce any bad effect. It hastens digestion and is very invigorating; but when taken by those unused to it, or in excess by those who are habituated to its use, it is very apt to induce wakefulness. Children should not use it or any auxiliary food; and they have no natural appetite for them.

COFFEE.

Coffee is very similar in its effects to tea, their active properties being very nearly the same, though coffee has more nutritious elements. It stimulates to digestion, and aids the assimilating process. It is enlivening and invigorating to both body and mind — drives away fatigue; and in its effects — as does tea — tends to diminish the liability to disease.

Both tea and coffee — and alcoholic drinks, when taken in small amounts largely diluted — tend to hinder the waste of the body, and to obstruct destructive changes; the body does not waste as fast as when they are not used. The addition to our meals of a small quantity of either of the beverages — more especially coffee — will fit us for much greater exertion, on a much lower diet, than is possible without them.

When they are used, the nutrition of a meal seems to last much longer, and we grow hungry less rapidly.

Tea and coffee act in relieving a fatigued man or woman far better than any form of alcoholic drinks; but these benefits are not from any form of nutrition, but from their power of preventing the every-day "wear and tear," or the waste of our ever-changing bodies. Is there not a question as to any real benefit in using an atom of our bodies, longer than Nature designed, by using beverages? Certainly children never should.

FAT FOOD.

An excess of fat food not only tends to make a child obese, but when that excess is more than can be consumed or stored, it throws too much work upon the liver, and it becomes diseased from over-work; or else its secretions from the blood are not sufficient to keep it pure, and then we have biliousness, or bile in the blood. These are the only evil effects from eating too much fat. For these bad results, we are told of the "nauseous, greasy mass," fit only for soap.

PORK.

We are told that "pork, scrofulous, measly, disgusting pork, flesh of the most disgustingly filthy animal known, was the source of most of the ills of life." Now, some of our would-be friends of humanity, in their righteous indignation over an excessive use of fats, are going to the other extreme. They would leave the impression that all fat meat is unfit for food; and that no pork is fit to be used—and is diseased, and giving disease—because they have found a scrofulous hog or two, or some pork that was measly, or a bit of the lean meat of a swine that had trachina in it. Now, is this fair? is it just?

We should not throw upon food that has been used for ages, as a staple article of diet, the stigma that only belongs to certain diseased units. It would be just as right to question the virtue of every man and woman, because, forsooth, a few are known to have diseased morals. Away with this disposition to sacrifice all for the sins of a few! Occasionally we find wheat diseased, and producing a fungus growth. Shall we for this reason say that all wheat is unfit for

use as food? We sometimes find fruit filled with parasites. Why not, upon the same authority, and with equal justice, cry out against the use of fruit? No! let all food stand upon its value as food in a sound, healthy state—and none other are here represented—for we should never, under any circumstances, use any food of any kind, either vegetable or animal, that is not healthy in its growth, and that has not been preserved perfectly sound and wholesome.

But let us never discard a class of food upon the ground of finding some that is diseased; if we do we will have to throw away all food. Pork, and all animal food, is sometimes in a diseased state; and for this reason we need to be careful that ours comes from a healthy animal.

CHILDREN OFTEN CRAVE FAT FOOD.

Children, and quite small ones too, often crave food that is fat-giving—will immediately leave almost anything they are eating, for a piece of fat pork or beef, and, if allowed to have it, will suck it with as much enjoyment as it is possible for them to show; and will sometimes eat an enormous amount of it when it has been kept

from them. Is there no adaptation of supply and demand in this love for fat food? This child, one or two years old, has not acquired an appetite for anything; but only hungers to supply the demands of the body for growth and waste. Do we not, then, see that Nature is calling for fat as a need?

FAT-EATING CHILDREN GENERALLY HEALTHY.

Children who have such an appetite are usually strong and healthy — those who have had their appetites gratified with a mother's kind judgment. Give the child his fat food in moderation, as he will take it if he has it every day, and we will see him keep healthy. Refuse the fat food his appetite calls for, and he will eat largely of sugar and sweets, and of vegetables that contain starch. Of these he must eat a larger bulk, and his digestive organs labor harder to assimilate the amount of carbon his body wants. This over-work may affect the digestion, when, if he had been fed fat meat, as Nature called for it, this more concentrated food would not have over-worked his digestive organs.

EATING CANDY AND SUGAR.

The child often has a strong desire for sweet foods and sweetmeats. This shows a want of carbon in the system—that he is needing a large amount of it. When the little child so earnestly pleads for candy—his idea of the sugar he so much covets—feed it to him; only being careful of the quality, and the quantity he shall use at any one time. There is an instinctive feeling about these wants; and if they are not gratified in some form, the child does not fill that want of its body, and this vacancy will in after-life tell against his health in some way.

Many are the cries against eating candies and sugar, as making the child bilious and black, or that it rots the teeth; but the want of it makes more puny children than the use of it in any form ever injured, the want of it rots more teeth than were ever hurt by its use. Then let us feed them on the rational principle of a demanding appetite.

FAT-EATING PREVENTS CONSUMPTION.

Dr. Huxley, in his work upon Hygiene, says: "It is believed that a lack of oleaginous ele-

ments in diet predisposes to consumption." The immediate cause of this disease, as has already been observed, is an abortive or imperfect nutrition, tubercle being produced instead of healthy tissue.

The seeds of consumption are most generally sown in the system in youth, when there is a double demand upon nutrition for current waste and steady growth. When there is sufficient proteid matter to nourish the structures, some other condition must be wanting. Eminent physiologists have lately maintained that the faulty nutrition which results in tubercle is caused by a deficiency in oily substances; and therefore such of those fatty substances as are most easily digested and absorbed have been indicated as remedies.

Cod-liver oil has come into use for this purpose. Dr. Hughs Bennett, who first introduced this oil to the notice of the public, states that butchers, cooks, oilmen, tanners, and others who are constantly coming in contact with fatty matter, are less liable than others to tubercular diseases; and Dr. Simpson has observed that "children and young persons employed in wool factories, where large quantities of oil are daily

used, are generally exempt from scrofula and pulmonary consumption. These facts would indicate that even the absorption of fatty matter through the skin may powerfully influence nutrition."

Dr. Bennett says, that "to prevent consumption during youth, indulgence in indigestible articles of food should be avoided, especially pastry, unripe fruit, salted provisions, and acid drinks; while the habit of eating a certain quantity of fat should be encouraged, and, if necessary, made imperative." Dr. Carpenter observes: "There is a strong tendency and increasing reason to believe that a deficiency of oleaginous matter, in a state fit for appropriating by the nutritive process, is a fertile source of diseased action, especially that of a tuberculous character; and that the habitual use of it in large quantities would operate favorably in the prevention of such maladies, as cod-liver oil unquestionably does in the cure."

A most remarkable example of this is presented in the population of Iceland, which, notwithstanding the concurrence of every one of the circumstances usually considered favorable to the scrofulous diathesis, enjoys a most

remarkable immunity from it—without any assignable cause other than the peculiar oleaginous character of the diet usually employed.

Dr. Hooker, in a report on the diet of the sick, says: "1*st*. Of all persons between the ages of fifteen and twenty-two years, more than one-fifth eat no fat meat. 2*d*. That of the persons at the age of forty-five, all, except less than one in fifty, habitually use fat meat. 3*d*. Of those who have abstained, a few acquire an appetite for it, and live to a good old age, while a great majority die of consumption before forty-five. 4*th*. Of persons dying of consumption between the ages of fifteen and forty-five, nine-tenths, at least, have never used fat meats."

From the above facts and opinions, given by some of our first and most scientific physicians, hygienists, and physiologists—those who have devoted a long life to this study, we are led to believe that a more general use of meats, especially fat meats, would largely prevent its development in those who have inherited it.

PERSONAL OBSERVATIONS.

Our own observations, during some twenty years, in the practice of medicine, is in harmony

with the above opinions. We have observed that in the rural districts, those children who were fond of fat meats were the healthy ones, and remained so; and that those who were scrofulous, or died early of consumption, were those who did not use and relish fat meats, or did not use them from false instructions received from "would-be philanthropists," called vegetarians. Our observations have been that no class of people were more liable to generate and entail scrofula and consumption than the low-fed vegetarians — those who believe the animal was never made to eat, but that all our food must be gathered from the vegetable kingdom; and no class are as free from generating it, or entailing it upon their issue, as those people who eat largely of beef and pork, and all forms of animal food; and more especially so, if they were eaters of the fat parts of the animal.

CHILDREN THAT HAVE NO APPETITE FOR FAT FOOD.

Some children seem to have no appetite for fat food, but rather dislike it in any form; and unless such children eat very largely of starch, or sugar elements, or use corn, the great fat-pro-

ducing cereal, they will surely show disease in some form. Children who refuse all fat food are not healthy; and as they grow older will show plainly this unsoundness. A truly healthy child will some time like fat food; and it is a very rare circumstance to find a healthy child that will not eat sugar any and every time. We should try and form an appetite for fat food in the child who has none, as a safeguard against a tendency towards consumption; just as the physician will feed his patient on cod-liver oil to cure or postpone the disease.

CONSUMPTION PREVENTIVES, IN BRIEF.

A pure air — wholesome food — a large part of which shall be animal food of both fat and lean fibres — warm clothing for the limbs as well as for the bodies — and clean skins, will save every child from acquiring consumption, and prevent most who inherit it from developing it.

WHY WE SHOULD STUDY HYGIENE.

Are there not enough reasons in this one disease why parents should give the study of Hygiene more attention? Medicine does not

cure it — it is hereditary; and our children will inherit a tendency to it if we are so unfortunate as to have it in our systems. If we only knew the way to prevent it, we could not only prevent our children from developing such a tendency, and thus, again, their children, but we would save the suffering and expense of a tedious sickness. Let us use every available means to raise healthy children, or let us raise none. Let us not be the cause of introducing any more suffering into this world; especially when it must be entailed upon those who are innocent of producing it.

CHAPTER VI.

Clothing and Cleanliness.

CLEAN ANIMALS — A STORY.

AS we were spending a few hours with a patient at a farm-house, the farmer asked us to walk out and see his pigs; to which we readily assented, having heard that he had the "neatest" and best hogs in the vicinity. On a little elevation, a short distance one side of his house, we found a small but very neat sty, in which were two of the purest white shoats we had ever seen. He immediately stepped into the pen, and, taking a common horse-brush, began to brush and rub them with it, to the great satisfaction of said porkers, shown by the frequent "ugh, ugh," arching back, and apparent jealousy of "the other pig," when he did not receive the grooming.

Their bristles and skin were white, and looked as pure as the new-fallen snow, while the straw of their bed appeared, to the eye, neat enough for humanity.

"How d'ye like the looks o' them?" asked my farmer friend. "Well, they look good enough to eat," was our reply. In conversation with him we learned that he was in the habit of brushing them thoroughly every day, and of washing them once every week; and that he thought they grew enough faster, and on enough less food, to pay him amply for all his pains and trouble, besides the pleasure of having neat, sweet porkers for his pork-barrel. The scurf so common on the skin of hogs was all removed —not left, as a dirty shirt, to act like a plaster, by being re-absorbed into the circulation of the skin.

ITS APPLICATION.

The thought came to us: If so much improvement can be made in a hog by cleanliness, and nothing but cleanliness, will not greater cleanliness help the physical structure of man in the same ratio? Oh! then you consider it an insult to be compared to a hog? But let us say to

you, that there are many human skins that are not as pure, or as sweet, as the skin of the hog that is allowed to do as it chooses; released from the close confinement of the pen, where it can rub and chafe when it wishes; and wash in pure water whenever its instincts call for it.

Man, who can do as he will—go and come at his own bidding—who is never shut away from water, and the means of using it as he will, both upon his person and upon his clothes, will often go—must I say it?—a lifetime without once using water upon his back, to remove what would be scurf as thick as is seen on the back of the hog, were there bristles to keep it from falling off. If our eyes deceive us as to the cleanliness of our neighbor, our eyes and nose, together, will be sufficient evidence of the total want of the use of water.

ANIMALS, CLEAN AND UNCLEAN, COMPARED.

But we need not take the hog as evidence that cleanliness is profitable—take the horse. Why does the groom brush and curry the horse an hour every day? Do you say it is to keep him smooth and clean? It is true, looks are a part, but only a part, of the gain; but if he did

not *do* better—keep in better condition on less food—he would not look so much better. The practical stable-man will tell you that the well-groomed horse will keep in condition on less food, and that he will be stronger and more active—in fact, in a better state of health.

As evidence, compare horses that are well groomed with those that are not. The difference can not only be seen, but it can be felt, and smelled. The odor of the skin of an ungroomed horse is far stronger than that of one which is thoroughly curried and brushed every day.

We are proud of the good looks of our horse—we think his strength valuable; and we dispise a sickly horse—we think the man who will not take good care of his horse a greater brute than the animal, and say, "he ought not to have a horse." Are there no applications of these ideas to parents, who have children that are dependent upon them for the habits they are to form, as much as they are for what they were when born?

THE ANATOMY OF THE SKIN.

That we may more plainly see the necessity of keeping the child's skin clean, let us study

its anatomy a little—enough to show us what there is on the skin that ought to be washed off. It is filled with little glands, called sweat glands. They are found in all parts of the skin, but more thickly in some places than in others; and they consist of little coils of tubing, convoluted in the form of a cork-screw as they come up to the surface, and are microscopic in size.

SEVEN MILLIONS OF THESE GLANDS.

When straightened out they are only about one-fourth of an inch in length. But there are an average of some three thousand five hundred and twenty-eight of these glands to every square inch of surface on our hands, where they are the most abundant. This, multiplied by one-fourth of an inch, will give us eight hundred and eighty-two inches, or about seventy-three feet in length of this tubing, to the square inch on our hands. On a full-grown man's body, Dr. E. Wilson, the great anatomist, estimates an average of some twenty-eight hundred of these pores to the square inch, and about twenty-five hundred square inches surface on the body. If we multiply these together, we will have seven millions of these glands on our body, if it is

of the average size and formation, with that number of open mouths called pores, from which an excretion is constantly, though insensibly, passing.

TWENTY-EIGHT MILES OF TUBING.

As each gland has an average length, when straightened out, of about one-fourth of an inch, four of them will make one inch in length; consequently we have one million seven hundred and fifty thousand inches, or one hundred and forty-five thousand eight hundred and thirty-three feet, or nearly twenty-eight miles of this tubing in our skins, constantly throwing off the waste, effete, and foul matters for which the body has no further use.

As we have already said, this excretion is usually insensible; yet its total will amount to a pound or two a day; and from persons who sweat much it is often double that amount.

THESE TUBES ARE SEWERS, AND THE EXCRETION SEWERAGE.

These glands can be considered only as sewers of the body, and the matter thrown off as sewerage. On the child, in whose interest we are

writing, the number of glands is supposed to be the same; but it is plainly seen they must be much smaller.

Then, if we have seven millions of these sewerage glands in our skins, and our children have the same, can we not see good reason for using water freely — for always remembering our ablutions, and those of our child?

WHERE TO FIND ITS ODORS.

Were you never in a close room occupied by one person, or in a large one occupied by many, who never washed their skins, and almost never washed their shirts or under-garments, but wore them on and on, until the eye was not the only offended member of your organs of sense? — until you would almost have to hold your nose to make it endure the punishment it was receiving? Did you never take a little child in your arms, with perhaps a clean dress on the outside, and a face and hands that had been washed — since you arrived — on purpose to kiss you, that you thought — when you got the odor — was not so mild but that you ought to have "smelled it a mile?"

Did you never dance with partners who ap-

peared, to the eye, quite tastefully dressed, and only undeceived you when they became warm, after which you turned your nose the other way? The odor you got at such times came from the decomposing sewerage of these sweat glands; probably the most unhealthy perfumery possible for a human being to breathe.

THE UNCLEANLY MOTHER.

But what will we say of a mother who will let her own person go thus uncleanly, and also let her child's skin remain unwashed, and underwear uncleaned, both mother and child, skin and under-clothes, all unclean and impure, until every one in a room where they are will be conscious of it by what they learn through their olfactory organs?

The most we can here say is, that she must be very ignorant of the effect that such uncleanliness will have upon both her own health, and the health of her infant kept close to her person. We do not believe there are mothers who are so utterly regardless of their children's welfare — who have so little maternal love for their little charges — as knowingly thus to injure them. A mother's love for her infant is too strong to

allow her to neglect it. She does not know that the foul secretions from the child's skin, which have saturated its under-clothes, already worn far too long, act like a plaster, irritating the skin, which, in turn, re-absorbs the secretions; which re-absorbed secretions, like any other poison, depress the mental powers, or reduce the physical stamina, by the over-exertion required to throw off the poison, thus hindering the building up of the body, or preventing it from being finely developed.

THE HEALTHY DIRTY CHILD.

But you say that very many very dirty children are quite healthy, and you do not see why they are not as healthy as clean ones.

Did you ever compare a dozen dirty families with a dozen clean ones, as to their health? Then do not speak of one child as compared with another; for we admit that a dirty boy with good entailment, and all the other hygienic points properly cared for, may be more healthy than a clean boy who has inherited that which tends to make him diseased—that is shut up in a close room where he is breathing a dirty atmosphere all the time.

THE SOIL IS NOT POISONOUS DIRT.

We do not include the soil, dust, or any of the accretions from the earth, when they are washed off every day, among the dirty poisons that so much injure the child. These are not poisonous, nor are they directly injurious; and keeping the child away from the necessary out-door air is a thousand times worse than their indirect injuries.

But the accumulation upon the skin of foul vegetable and animal matter, and, above all, the effete matter of the child's own body, either from the kidneys, bowels, or skin, are very injurious, directly and indirectly. What would our boy, that was so healthy in his dirt, have been had he been kept clean — had he never suffered the depressing influence of filth? Answer this, while we tell you that there is twice as much sickness in the dirty family as in the clean one, other things being equal.

REASONING WITHOUT ALL THE FACTS.

We reason without all the data when we compare the health of one of our very neat "house-plant" children, who are not allowed

out of doors — who are never permitted to roll and tumble up and down the knolls of the lawn, because it would soil his clothes — with one of those ragged, little, dirty rascals, who is allowed to "roam wheresoe'r he may," and tumble over and around in healthy exercise, in the sunlight and pure air of all out-doors.

This dirty child has many advantages to balance the disadvantage of a dirty skin; while the clean boy has many disadvantages to balance the advantage of cleanliness.

KEEP CLEAN WITH WATER, NOT BY RESTRAINT.

Then do not keep a child clean by restraining him, but keep him clean with water. Wash them frequently, and then let them have the same out-door habits that they had when we called them dirty. If they would be so healthy, do so well, while carrying so much that smelt so strong, certainly they will be a marvel of growth and strength when relieved of it.

If we are to be careless of any part of the child's appearance, let it be that concerning which we are usually the most particular — the part we see — the *outside* clothes. While we are wont to change these often, we forget the

child's shirt, and we leave that on through the whole week; and we have seen children who have worn them until they were worn off. We, almost all of us, will leave the under-garments on without a thought of their purity, and change the child's outer dress and apron every time it is soiled so the eye can observe it.

A DIRTY SKIN SMELLS BAD.

We do not think that, though the eye cannot see the untidy under-clothing, the olfactory organ takes cognizance of it, when its perceptions are not blunted by a constant use of such perfume. For looks' sake we make our child a "whited sepulchre,"—clean as far as the eye can penetrate, but just within, it—well, it smells bad, at least.

A FOUL SKIN TAKES FROM THE FORCES OF LIFE.

If this foulness of the skin does not make the child sick, it certainly will take a share of the forces of life to counteract the surely poisonous effects of what is re-absorbed and passes again into the blood, from which it was removed as effete matter.

The effete secretions and excretions, when left

upon the skin, are as positively absorbed into the blood from which they have been thrown out, as is the external medical application we so often use, and are so sure to see the effect of. Whatever the application is that we make to the skin, if it is kept moist, some of it will be absorbed and passed into the circulation, there producing its legitimate effects — be the application a hop fomentation with its anodyne effect, chloroform liniment with its anæsthetic influence, or the foul, sweat-begummed shirt, with its depressingly sedative influence.

THE BATH AND CLEAN CLOTHES ARE EXHILARATING.

Every man, woman, and child, who has ever tried it, knows the pleasant, exhilarating energy that is given by a good bath and clean clothes. The open pores, relieved of the sticky mass that has gummed up their mouths, begin anew the work of carrying off the effete matters from the body; and with a clean garment next the skin there is nothing to be re-absorbed that will produce depression.

OTHER BENEFITS FROM THE USE OF WATER.

Besides cleanliness there are other benefits to be received from the daily use of water upon the skin of children. It will strengthen the nervous system; and is one of the best preventives against "taking cold" and having coughs.

HOW TO KEEP THE SKIN CLEAN — BATHS.

Having seen that a clean skin is very beneficial for the child, let us look at the more practical part — how to keep it clean.

In early life, that is, in early infancy, all children are very susceptible to cold — to any influence that will reduce their temperature; therefore, babies, during their first few months, should be used to warm or tepid baths. The warm bath for the infant should be about 96° or 98° Fahrenheit, and the tepid bath from 80° to 88°.

Every morning the infant should be put into a warm bath, and allowed to remain there from three to five minutes; and this should be done in a warm room, never in a cold one. Gradually the temperature of the bath may be reduced, as the child grows older, to the same temperature as the room; but it must be done gradually.

The use of cold water must be reserved for grown persons. Some parents are in the habit of plunging their infants into a cold bath, thinking it will harden them; than which there never was a greater mistake. The evening, in addition to the morning bath, induces sleep; and if a child is delicate in constitution, an evening bath is especially useful. The addition of a spoonful or two of common salt will make it still more invigorating.

The bath should not be used immediately after the child has taken nourishment; for such an external application, while the process of digestion is concentrating the blood internally, is liable to produce congestions. Care should always be taken not to let the wet skin be dried in atmospheric currents; and after the child is properly "immersed," it should not be taken out into the air until it is through with its ablutions for that time; then it should be taken in a warm blanket and quickly wiped dry, then rubbed until the skin has a ruby-red color.

FRICTION OR GROOMING.

For this purpose we should use a soft piece of linen, or still better, perhaps, a soft piece of

flannel, which produces a gentle friction of the skin — a kind of grooming of great value in bringing the blood out to the surface, thus equalizing the circulation. As the infant grows older, and becomes more inured to baths, it may receive more of the air while taking them; and precautions very necessary when quite young and feeble, may be gradually omitted; and, finally, when the child is a year or two old, quite cool baths may be used; but even then the wiping dry and grooming process must not be forgotten. At four or five years of age the baths may be used only every other day; and the use of the sponge-bath may be substituted for the ordinary bath, followed by brisk rubbings.

THE USE OF SOAP.

Do not use much soap in the ablutions of your children, for it is very irritating to the skin, and is not needed to remove the secretions of the sweat glands. They are soluble in water; and the secretions of the hair follicles, of an oily nature, should not be removed, as they are to keep the skin smooth and soft — are for the good of the skin, and not sewerage of the body.

When the skin is very foul — which should

not be allowed—a little very bland soap may be used; care being taken to wash it all off.

THE ART OF PRESERVING LIFE.

Among the arts of preserving life and health, care of the skin should be ranked as of the first importance; and the benefits derived from keeping the skin clean, active, and soft, should not be withheld from the child. If it is properly used, the bath will never increase any internal irritation, but tends to check it by driving it to the surface, when the active pores will soon expel it from the body.

CLEANLINESS SAVES USING CASTOR OIL AND DRUGS.

Thus it saves the use of active drugs, cathartic pills, and castor oil—all of which are injurious in a certain degree, even though used by physicians of good inherent ability and sound education. The use of the cleansing bath is a frequent preventive of the numerous ailments of infancy and childhood.

"The daily employment of the bath, and scrupulous attention to the cleanliness of the person and clothing, would materially lessen the

demand for purgative medicines and soothing syrups."

DISEASE OF THE SKIN PREVENTED.

Childhood is a time of life particularly favorable for humors and skin eruptions, and for this reason care for the skin is of more importance at this period of life than any other; as most of these troubles may then be avoided, by the above-mentioned scrupulous care and cleanliness —the activity of the sweat glands carrying such humors out of the blood, when they are not obstructed by impurities, or irritated by a continual contact with, or the re-absorption of, poisonous excretions.

"The appearance of these the mother ought to regard as a great calamity, for they are often difficult of cure, and render the child an object of disgust. She ought also to look upon them as a mischievous consequence of the neglect of those laws of health which it is her duty to learn and observe."

THE CULTURE OF THE SKIN VERY IMPORTANT.

As we believe the care and cleanliness of the skin to be of the first importance in the "how"

to raise healthy children, we have used this amount of space in trying to show the "whys and wherefores." We have tried to show that a clean, well-groomed skin is one of the best preventions against disease, acquired or inherited. If we have failed, it is not from a want of interest in this truly important element in the principle of "prevention better than cure."

MOTHERS SHOULD ATTEND TO THE CHILD'S ABLUTIONS.

But before we leave this subject, another special word to mothers: Never trust these ablutions to any one but yourself. You, who alone love "my baby" with a maternal love — you, to whose heart it lies the nearest — are the one who should watch it, and see that it is done right. Nurses *may* do it well, and they *may* not. You *will* do it well, if a true woman.

CLOTHE ACCORDING TO THE SENSATIONS.

In the matter of clothing for our children, we should use their sensations as guides — the same as we would follow the sense of hunger in feeding. Consult what is for the child's comfort,

and give just enough to keep away all feelings of cold or uncomfortable chilliness.

THE SO-CALLED "HARDENING PROCESS."

Do not attempt the so-called "hardening process," by which some parents expect to accustom their children to endure cold, or you may toughen them too hard to stay in this life—they may find it too hard to be hardened, and, like the Irishman's horse that he was teaching to live without eating, "that up and died just as he had him learned," they may "up and die" just before you have them hardened.

The arguments used for the hardening process are very superficial. They are all based upon the fact that we see little urchins, half-dressed, barefoot, and all round on cold days, and we find them healthy; therefore, if we would undress our children, and take their stockings off, and turn them into the street, they would be stout and healthy. It is forgotten that those half-dressed children are in many other respects very favorably placed. Sound parentage, good, plain food, and an appetite for it, and, above all, plenty of pure out-door air, with healthful exercise in the gambols of out-

door life. It is forgotten that the forces of their bodies are not used up in mental toil, or in throwing off inherited disease, or in combating the impure atmosphere of a close room.

"For aught that appears to the contrary, their good health may be maintained, not in consequence of, but in spite of, their deficient clothing." We believe that children who have stamina enough to withstand such "hardening" influences, would, if they were removed from them, be much more thoroughly developed. For when a child has an inherent strength sufficient to withstand such an amount of cold, he bears it at the expense of some other development, as growth, mental vigor, quality of the material or intellectual growth, or in the length of his life. It takes vital power to counteract the poisonous effect of a foul skin — it takes vital power to counteract the effect of impure atmosphere; and it takes a large amount of vital force to counteract the cold of our climate; and on the child the cold is most severe in its effects.

OUR OWN AND OUR CHILDREN'S CLOTHES COMPARED.

Then how necessary it is to clothe the child so that it will not suffer from the chills of too

rapid radiation. We dress ourselves, when we are full grown, and have only the natural waste of our bodies to supply from nourishment, with thick garments, and never expose our legs, arms or shoulders to a biting wind or frost; and would think that man crazy who would dress his body warm, and go out with naked arms and neck, and almost naked legs.

We grown-up people cannot bear it, though we do not radiate heat as fast as the child, and have been more inured to cold, by meeting cold seasons for years, and have not so much use for our heat-producing food. Still, when it is cold we must dress with clothes upon clothes — with furs and mufflers.

DRESSING THE LITTLE BOY.

And while we are doing all this for ourselves, let us watch the dressing of the little boy or girl to go out with their parents, dressed as just described. Perhaps the boy's body is dressed warm enough, but his arms are bare, his neck and shoulders are bare, his knees and legs below are covered with only one thickness — and that perhaps only a cotton stocking — his thighs have on pants of only one thickness —

and that usually no thicker than his father's drawers over which he wears pants some three or four times warmer than his boy's pants. Does the boy complain of cold, he is told to run, or that he is young and can bear it.

DRESSING THE LITTLE GIRL.

But how is it with the young girl's dress? Arms, neck, shoulders, all bare; and the legs no better clothed than the boy's; with the lower portion of the body still worse.

TRY IT, FATHERS.

We would say to fathers, that if they have any doubt as to the injurious consequences of thus exposing the limbs of their children, they can try it on their own persons; remembering, while they are so trying it, that they are better able to bear it than their son is — that their bodies are matured and hardened with age, so that they do not feel a pain so readily as a child — and that though they suffer, the child feels the same amount of pain with a far deeper sensation — and that the plastic, easily moulded frame of the boy is impressed by every such exposure — that it will be different from what

it would have been had he been dressed with sufficient clothing to keep his body warm.

No, fathers, you will never thus expose yourselves! Then do not, in the name of humanity, allow your boy to be thus clothed in accordance with a pestilential fashion.

THE LITTLE GIRL'S AND THE BALLET GIRL'S DRESS COMPARED.

We would ask mothers if they think the ballet girls in full dress — or rather undress — for the stage, are clothed warm enough for every-day life; or for evening or morning airing; or for the biting winds of a colder day? We would ask them if they think their arms, legs, and in fact both extremities of their bodies, are sufficiently clothed for withstanding a cold air, or a chilly wind? Yet you dress your little daughters — the beauty and the loveliness of your family — with immature bodies, in fact all in the feeble state of rapid growth — in this way, contrary to all rules of physical life.

Do you think the ballet girl needs more clothing for her health, before she goes out? Then remember, the next time you dress your little girl, on a cold day, for church, that she

needs as much warm clothing as any one; and do not sin against her more than you sin against yourself, when dressing.

Do you think the ballet girl needs more covering for decency's sake? Then remember, and do not dress your timid little girl as indecently; for her modesty is yet unabashed — not all gone — and her virtue as pure as the mountain snow. Do not make the first stain or her purity with your own hand. Keep her puré and sweet as long as you can.

MORE NECESSARY TO KEEP THE CHILD WARM.

If we believe, or know, it is necessary for our own persons to be well guarded against cold — if we find that our limbs must be covered with garments or suffer with cold; and further, if we realize the fact that a child is more sensitive to cold than a grown person, we shall try and dress our children for their comfort and health; we will not let them go chilled so that their skins will be shrivelled all up, or with papillæ prominent like goose-skin — we will try and invite the blood to the surface, by suitably warm clothing, and by a well-kept skin; which shall be pure, sweet, and wholesome.

We will consider that we are saving our children from many of those diseases that are the result of hard colds—that we are doing that which will tend to make them more healthy in childhood, and lay a foundation for a strong and vigorous maturity; able to say—at four-score years—that they have "fought a good fight," and fulfilled the faith of their parents, and henceforth there is laid up for them the reward of good physical ability.

VALUE IS A RETURN FOR LABOR.

We never expect to have anything of value, in this life, without giving strict care and attention to it. If we acquire wealth, or honor, or morality, they are only obtained by our own efforts. If we raise a good and valuable horse, or the finest sheep, stock, swine, or fowls, or the best grain, or the finest fruit, berries, or vegetables—if we invent any machinery or implement of great worth, we do it by using our best efforts. They are the reward of thought and study—the return for labor. May we not say that good, sound children—of fine physical and mental power—do not come by chance?

We believe it is as possible to raise a boy to

a definite standard as it is a horse. We believe it is possible to teach a boy habits of cleanliness that will last him as long as he lives. We believe that the cleansing bath, and warm, suitable clothing, will do much towards making our children what we want them to be; and certainly, if they help a little, it is our duty to use them. We have no right to omit anything that will help to make our boys and girls better as boys and girls, or as men and women.

OVER-DRESSING THE THROAT.

It is as wrong to over-dress a child as it is to under-dress it; and we often see some parts all muffled up, as the neck and throat, while other parts are under-dressed. This will cause sore throats; and we think one reason for the great prevalence of throat disease, among the people of this age, is this custom of wrapping up the throat in tippets and furs, while the extremities are left almost without care. We should strive to dress the body and limbs uniformly.

SHOULD WEAR FLANNEL NEXT THE SKIN.

Flannel is surely the best cloth to wear next the skin during all our variable weather through

the year, and we would advise its use from earliest infancy up to mature age—changing from thick to thin, and thin to thick, as the seasons require it.

It is true that cotton, in warm weather, is very good, and will *then* do; but with a climate that allows the thermometer to vary from 25° to 50° in twenty-four hours, and one-half that amount in one hour, we would advise cloth to be worn next to the skin that will not conduct our manufactured heat away, or feel saturated with moisture when it receives a slight increase of the usually insensible perspiration. We would advise the use of flannel because it will not leave a sense of chilliness upon the child's body, as will other clothes that are better conductors of heat.

In very warm weather, during the warm part of the day, cotton next the skin is very comfortable, and if we would change it before the cool of the evening comes, we could use it, and feel better for its use. Woolen will take a large amount of moisture before it feels damp; cotton under-garments feel very wet before they have received one-fourth the amount that it will take to make woolen feel damp.

CHANGE THE UNDER-CLOTHES OFTEN.

Whatever is worn next the skin of the child, should be changed often, very often; and aired by being hung out where the winds of heaven can blow all the impurities from it, and the light of the sun have its purifying effect upon it. This airing should not be used *instead* of washing, but in addition thereto; say by washing every week, and airing two or three times a week.

CHANGE ALL THE CLOTHES AT NIGHT.

Never let a child sleep during the night in any of the clothes worn during the day-time; and very especially those worn next the skin.

We would speak as strongly as possible against this very common custom of sleeping ourselves, and allowing our children to sleep in their undershirts or garments.

The exhalations from the skin are very abundant in a warm bed; and if we would wear one garment at night, and then change it in the morning for another, we — and all persons young and old — would not offend our neighbor's nose quite so often.

ALL CLOTHES SHOULD BE WELL AIRED.

Night-dresses should be well aired during the day, and the day-clothes should be well aired during the night. Though we do not regard the outside clothes of nearly as much importance, in a Hygienic view, as the underwear, still they should be clean and wholesome; and loose and cool in hot weather, and warm enough in cold weather not to produce or permit any sensations of cold or chilliness.

HABITS OF CLEANLINESS.

Habits formed in early life and early childhood are very permanent.

"As the twig is bent, so the tree inclines," is as true in the habits of cleanliness as in any respect. Then let us strive to inspire cleanly habits in our children, until they are so fixed in them that they will ever be neat in person and surroundings; that they will make clean men and women — in turn ready to teach habits of cleanliness to their children, and thus shall our influence reach on — forever.

Foul skins and underwear will surely befoul the atmosphere; and thus we have another rea-

son for purifying our bodies. As said in a former chapter, the impurities in the air are very frequent causes of disease.

CLEANLINESS A PASSPORT TO GOOD SOCIETY.

One clean habit acquired is a step towards another, which, when gained, will help to a third; and all these habits of cleanliness help to elevate not only the health but the general standing of the person in society.

An unclean child is a mirror in which the habits of the mother are seen by any one who chooses to look therein; and no man or woman whose untidiness is reflected in these mirrors will stand as high in social *caste* as they whose children reflect the pure habits of their parents in their persons and dress.

All persons admire children neatly dressed; and when they are thus neat and clean, the question of the quality of the material is very rarely raised. Poverty is not often an excuse for dirty habits; for none are so poor but they can find time to use water upon their own persons, and upon the persons and clothes of their children. "When there is a will there is a way."

CHAPTER VII.

Activity and Exercise.

ANIMAL LIFE A LIFE OF ACTIVITY.

ANIMAL life is a life of volitional activity —of movement—of exercise; while vegetable life is a life of inactivity—of quiet—of stationary existence; yet, though so differently manifested, both have life—both require and use nutriment to supply the forces of life; in short, both animal and vegetable will die if they are deprived of food.

A state of perfect inactivity is the only state in which the vegetable will thrive; while every organ of animal life will become atrophied to a degree beyond repair if it is deprived of its accustomed labors, for a time depending upon the frequency of its actions.

A PLAIN EXAMPLE OF THE WANT OF EXERCISE.

But the most obvious example of the want of exercise is found in the muscular system. Take the arm of a boy and so place it that it cannot be moved—not a muscle able to contract; a positive quietude, having neither active nor passive motion—and the muscles will, in a short space of time, become so deteriorated that no remedial measures will restore them to activity and usefulness. Their structure has become changed from the original muscle cell to the fat cell, which has no power of motion; nor can the change be restored.

EXERCISE INCREASES NUTRITION.

Nutriment is assimilated in obedience to the demand made by the waste of the tissues, as well as to supply the growth. A healthy increase of this waste—if kept within reasonable bounds—promotes active nutrition of the body, and also develops more vitality.

We all know that frequent exercise of a limb tends to increase its size and power, as is seen in the muscles of the blacksmith's arm, or in the large calves on the legs of the pedestrian. This

muscular exercise, while it increases the nutrition of the body, also helps to remove the waste or worn-out particles here and there through the body, which have lost their vitality.

Dr. Flint says: "It seems certain, then, that exercise increases the amount of effete matter eliminated. Within physiological limits, this increased elimination is attended, if proper nutriment be presented to the blood, by an increase in the activity of nutrition. If a man in perfect health, eating and drinking according to undepraved tastes, exercise his muscular system so as to increase to the highest physiological point the elimination of effete matter, he will correspondingly increase the nutrition of his muscular system. The more active the appropriation of nutriment, and the greater its amount, the higher will be the state of development of the muscle, and the better will it be able to do its work."

THE HEALTHY CHILD CANNOT KEEP STILL.

Thus we see why the child, and all young animals, have such a disposition to exercise—move—to run and jump. It is as necessary to their development as food—it is that which

makes the appetite for food. It is an impossibility to keep a wide-awake animal still, more especially a young animal. Try to keep yourself still for ten minutes. Sit down in a chair and do not move a muscle for that length of time. It is not a long time, but before it is gone you will think it long. Step out upon the floor and stand perfectly still for that length of time, not shifting from one leg to the other, not changing the perpendicular position of the whole body, letting the arms hang down by the sides perfectly quiet, and after you have tried ten minutes, tell us, honestly, if you did not move a muscle.

But let us say that you probably did move. You rested on one foot a part of the time more than you did upon the other; your knees did bend a little to ease the joint, and your hands had a muscular movement. If they did not, you have more control over your instinctive desire for voluntary motion than most persons.

If we, as grown persons, have so strong a propensity to move — such an uncontrolable desire to change our position — what should we expect of the active child, full of the nervous energy of life? Should we put them upon hard seats, and

require them to sit still by the hour? If we do, we will find our requirements disregarded—will find we have not power enough, in all our authority, to keep the child in such a state of unresting rest. It is impossible, from the physical necessities of the child, that such requirements should be obeyed. The child cannot keep still. It must move in its wakeful hours—and will move; and it should be allowed to, and to do it often; and when it does not, it needs sleep.

THE ACTIVE CHILD AND YOUNG ANIMAL COMPARED.

But happily, as a rule, we are not now inclined to keep our children too still. We have already learned that motion is one of the first laws of growing development—that we enfeeble the child in proportion as we check its activities. We have observed that all young animal life is a life of motion—of ceaseless activity. We know that the lamb hops and skips—that the colt jumps and runs—that the calf will play and exercise. We have observed this so long that we immediately think that young animal sick that is motionless and still;

and our conclusions are correct, for all healthy animal life will move. Its nervous energy will not be confined, but must have vent in active exercise.

A CHILD THAT IS EVER ON THE MOVE IS GENERALLY HEALTHY.

Show us a child, who, when not asleep, is always on the move, ever ready to run and race, leap and leave, roll and rolick, tear and tumble, and we will show you one that has the genuine vigor of health. Such a child will exercise until tired, and then will eat and sleep; after which, having recuperated his exhausted nervous and muscular power, he is again ready for the same exercise.

INSTINCT THE GUIDE FOR THE CHILD'S EXERCISE.

Then we say, let the child play, for it is as necessary as is their food; and as we would let their instinctive appetites be their rule of eating, so would we let the instinct of the child be its guide as to the kind and amount of exercise; that is, whether the child shall run, and thus exercise the muscles of its legs; or jump, which develops those and the muscles of the back; or

climb; or use the arms *a la* pugilist, thus strengthening the muscles of the chest and upper extremities; or whether it shall be an exercise including all these motions, thus using all the voluntary muscles of the body.

There is an instinct—an intuition—that calls upon the child to make just such motions as will use those muscles that are the most rested, or, rather, the most tired of being at rest—that are in the greatest need of a change of position by exercise. When the child is not hampered he will always make those motions that are required to give activity to those parts of the body that most need it.

GYMNASTICS VERSUS NATURAL PLAY.

And here a word comes in upon those *set* exercises which we call Gymnastics. While we think them vastly better than no exercise, we think them very much inferior to the common play of the child. They are given systematically, and only exercise a part of the muscles up to the full idea of exercise; and perhaps they exercise those very muscles which at that time do not need it.

As an instance, the boy is called to roll a

game of ten-pins. This uses the muscles of the chest, back, and arms. Perhaps, at this time, the boy felt a desire to run, and thus showed that the muscles of the legs were the ones that Nature told him needed exercise — were the muscles most weary of rest. If this boy had followed his own untaught instinct he would have taken a game of leap-frog. The gymnastic game in order may be jumping, when the child needed an active exercise of the arms, and his instinctive desire was a pugilistic movement.

INSTINCTIVE BETTER THAN SET EXERCISE.

While we believe that Nature will call the child out where it can get pure air to breathe, and will give it an appetite for the food the body is most in need of, we believe she will not lead the child astray in its exercise, but that the instinct of the child will lead it to desire that exercise which is best adapted to supply its physical wants at that particular time; and just enough of it, and not too much of it. It is something foreign to a child's nature to underdo, or to overdo, when it has not been restrained from doing.

When a child is tired it will lie down, and in

"Nature's sweet restorer, balmy sleep,"

rest, and repair its growing body. The child that is sick, or in any way infirm, will probably need the guidance of a judicious parent's judgment. But as we are writing for the healthy child—how to keep it so—we leave the sick to other doctors.

GIRLS TOO MUCH RESTRICTED IN PHYSICAL EXERCISE.

While there is no doubt that we are inclined, in most families, to give our boys enough exercise, we believe that many parents do not grant this privilege to their daughters, when they are small girls even; much less to those who are nearing womanhood. The mother is too much inclined to think that girls must not run and play any of those plays that the boys so much delight in, and that girls would equally enjoy, if not taught to think them fitting only for boys.

DON'T CALL YOUR GIRLS "TOM-BOYS."

We too often point the finger at our girls, when they are out enjoying the muscular sports

of childhood, and call them "tom-boys." Most parents are so fearful their girls will not become *ladies*, that they very much dislike to see them out in the open air, amused in those rough-and-tumble sports that are great developers of muscle and solidifiers of bone and sinew.

BROTHERS AND SISTERS COMPARED.

Take a family of brothers and sisters, of course having equal hereditary elements, the boys having no advantage over the girls by way of entailment, and we frequently find them very different in physical development at a mature age; the boys being strong, muscular, bony fellows, healthy and able, while the girls are too likely to be sickly and feeble, pale and poor, with small bones, and soft, flabby muscles — without the nervous vigor of their brothers.

If they have grown up to full size, they can not endure any amount of exercise. A gentleman invites young ladies, thus feeble, to walk, and under the stimulus of excitement they may walk quite well, for quite a distance — a distance that would be impossible without the stimulus — but they pay the penalty of a sick day or two for their rashness. They cannot

work — they cannot study. Dressing and parlor *tete-a-tete* are all they can bear, with perhaps an occasional ride. Languid and listless, they live; and we expect them to be the mothers of the coming generation.

PITY THE "COMING CHILD."

Oh! pity the "coming child," if it is to have such a woman for its mother. Under the law that "like begets like," it will be a helpless piece of humanity — almost lifeless. What a blessing to the world, "and the rest of mankind," that such women rarely become mothers, and that, when they do, their children die young!

FASHIONABLE SYSTEM OF MAKING "LADIES."

But the grand question in our interest is: Why do our girls make such valueless women? Because their mothers wish them to become ladies; because their mothers are afraid their little girls will be "tom-boys"; because their mothers are not willing to trust their girls in play with the boys. Away with all such fear and mistrust as this!

Let parents remember that boys and girls are the same, in all points of physical, mental, or

moral life, until puberty—that they need the same pure air to breathe, the same good food to eat, and just as much of it; that they need, and must have, the same physical exercise to develop bone, muscle, and nervous vigor. We should never use such terms as "tom-boy," but should do all in our power to teach the girl that she may jump and hop, play base ball, and leap-frog, even; anything and everything that shall raise her above the "good for nothing but to play with" that she becomes from the system of making *ladies*.

Girls are kept in the house, and told that it is unladylike to play out of doors. This want of out-door exercise takes away their appetite, and they become dainty feeders—do not eat one-half as much as their brothers of the same age.

Right here we lay the seeds of a sickly womanhood. The development is not good; the early cause being a want of such physical exercise as the boy has.

NO PRECEDENT FOR THUS RAISING GIRLS.

Returning to our comparison to the life of animals, we cannot find, in all the animal kingdom, a precedent upon which to base this differ-

ence in the manner of raising our boys and girls. All animals rear their male and female issue just the same, up to the age when they are capable of procreating their species. What one has and does, the other has and does. They eat, sleep, gambol, and run just the same; and still, among them all, we find the male masculine in all his instincts, and the female developed sufficiently to equal the male, and as strong, as well, and as capable of fulfilling her duties, as the male. We do not expect to see one enfeebled any more than the other. The animal instinct treats the sexes alike, and when maturity comes it finds the female equal to her part.

So it would be with our women, if they had the same chance, when girls, that the boys have —if they were allowed the same exercise out of doors—the same liberty to act in accordance with their instinctive desires in the development of muscle, bone, and vigor.

So it is with those that do have this privilege, and are not hampered, by social laws, from the instinctive employment of their muscular activities.

Exercise causes a waste of the body—a waste of the poor or worn-out cells. Waste calls for

new matter to take its place; the want of new material gives the appetite—an appetite for the very food that will fill the want; and thus we see why we should let our reason be in harmony with our instinct. This rule will apply to all healthy, undepraved appetites.

THE "SHOULD HAVE BEEN A BOY."

Notice that young lady whose parents allowed her, when a girl, full freedom to run with the boys, her brothers, and her neighbors' brothers—the young lady who was called, all through her girlhood, a "wild race-colt" of a girl—of whom people said, "She was a mistake of Nature,—she should have been a boy"—and you will surely find her a beautifully-developed woman—strong and vigorous. She can walk a few miles, before breakfast if it is necessary; can dance with any gentleman, and as long as the best of them; and not be sick the next day, either.

Such a woman is just as much of a lady when she has passed out of her wild girlhood days, as those who are taught all the polish and super-refinements of so-called fashionable society, and made to practice them. It is the most natural thing in the world for girls, born of ladies, to

develop into ladies when the period of womanhood arrives. Girls are none the less likely to become true ladies because, while they were children, they ran and played "tag" with the boys of their age. They are much less likely to become women of true worth, when they are deprived of all these exercises that tend so much to improve the physical system, and taught to sit still, fold their hands, and be as prim as old maids, trying to belie their age.

GIRLS SHOULD NOT BE "LADIES."

Then away with the idea that girls should be ladies before the age of puberty—that they must not romp and run, out of doors and indoors, as they may choose; up stairs and down stairs, up the hill and over the cliff, roll and tumble upon the lawn, play horse, and play tag, hide and seek, or any other game that is fitting for their brothers.

HOW TO PREVENT "FEMALE COMPLAINTS."

If we would thus let our girls have the same chance that we give our boys, we should soon see and hear less of those "female complaints," weak backs, and weaker limbs. Our women

would become able to fulfill their part in giving us a healthy generation of boys and girls, who would grow up equally healthy, hearty, and strong; which would increase the strength of the second generation, and thus we would soon be, physically, a strong people.

DR. NATHAN ALLEN ON PHYSICAL DEGENERATION.

Nathan Allen, M.D., of Lowell, Mass., in a paper published in the October number of Hammond's "Journal of Psychological Medicine," for 1870, more than intimates that the chief cause of the physical degeneracy of our people is a want of proper exercise, under favorable influences, of the muscles and bones while they are growing. We quote the following from this truly valuable paper: "It seems to be the order of Nature that the physical system is best developed and strengthened when the person is young — when all the tissues of the body are in a natural state of growth; and especially is this so in the case of the muscles, which constitute the moving powers of the whole system. Now, no kind of exercise or work whatever is so well calculated to improve the constitution and health of females as domestic labor. By its

lightness, repetition, and variety, it is peculiarly adapted to call into wholesome exercise all the muscles and organs of the body, producing an exuberance of health, vigor of frame, power of endurance, and elasticity of spirits; and to all these advantages are to be added the best possible domestic habits. In consequence of this want of training, or neglect of exercise, large numbers of our women do not possess that strength and firmness of muscle, that stamina and vitality of constitution, which are indispensable to sound and vigorous health."

STRONG MOTHERS NECESSARY FOR STRONG CHILDREN.

This is a point of great importance. If we expect strong children, we must have strong mothers; and to get them we must commence our Hygienic treatment in their infancy, by giving them, as they pass through from infancy to girlhood, that exercise that will strengthen their bones and muscles, as the blacksmith's and the farmer's arm is made strong by daily use—this daily use being in accordance with the instinctive requirements of the child. Children are not lazy; they do not shun exercise or labor;

nor are grown people lazy, except as it is acquired, or inherited from a parent who was weakly—constitutionally tired. Healthy children, born of healthy parents, will never grow up with indolent habits, if they are allowed the amount of play they need when small; and then, as they grow up, the activities of their well-developed bodies are gradually changed from habits of play to habits of labor, under a stimulus that labor has its reward.

"NOT LAZY, BUT CONSTITUTIONALLY TIRED."

How often we hear the remark, that "I am not lazy, but constitutionally tired," made jestingly; and how few think that the remark has a fearfully true meaning? that it expresses just the facts, taking the sentence just as it is now recorded, without the double meaning?

Fathers and mothers! the tired marriage-bed begets many children that will be "constitutionally tired"—tired, not from their fault, but from being the offspring of debilitated parents—from being conceived in a union too tired to have the vigor requisite to entail vigor upon the issue—tired often, perhaps, from over-labor in the cares and trials of this life.

Based upon these facts, we would say upon the "when" to raise healthy children: Do not beget a child except when you are in perfect bodily vigor.

UNDEVELOPED ART VERSUS INSTINCT.

Again, the oft-repeated expression comes in: "That we cannot raise sound issue from debilitated stock." Nor can we rear an infant that is strong and sound at birth, and disobey all the instinctive demands of the child; acting as though we thought the puny arts and wisdom of man were to be preferred to the natural instincts given by the Creator. The cattle upon a thousand hills are more wise in following Nature.

THE SICK CHILD SHOULD REST.

There are cases of sickness and ill-health where rest is a desideratum not to be lost sight of; where exercise is not only injurious but impossible; where improvement will be much more rapid while the child is quiet.

We would advise these to follow the directions of some honest, educated physician, who does not think medicine the only curative agent

in the world. But all healthy children, girls as well as boys, should be allowed and encouraged to exercise in the open air, and to do it as they may feel disposed—by running and jumping, or by using the upper extremities.

THE CHILD WILL EXERCISE UNTIL TIRED, THEN REST.

If we let children use their own instincts at all times in this matter of exercise, just as we would advise in eating, only guarding them from the excesses that may follow from partaking of that which is new to them, we shall not find puny, undeveloped muscle or rickety bones. There is no fear of their exercising too much. When they are weary they will sit down, or lie down, and refresh all their exhausted muscles and tired nervous powers by a sound sleep, then awake to renew their healthful gambols.

BUILDING GOOD "FOUNDATIONS."

Those who fully understand and appreciate this subject of exercise will say, let the little child play, for in so doing it is laying a foundation *below the frosts*, upon which to raise the building—man; that he may not "be likened

unto the foolish man which built his house upon the sand;" "but he is like a man which built a house, and digged deep, and laid the foundations on a rock, and when the flood arose, the stream beat vehemently upon that house and could not shake it; for it was founded upon a rock."

As children cannot thus lay the foundations for themselves, parents are expected, by the God of Nature, who permits them to have children, to see to this laying of foundations, and raising the superstructure into manhood. Shrink not from this responsibility, for upon you alone it rests, as the cause of the child's being.

"IN THE SWEAT OF THY FACE." LEARNING TO LABOR.

The command, that "in the sweat of thy face shalt thou eat bread," is still in force; and as the child passes by the age of infancy it should be taught habits of labor; and this exercise in play should be, by degrees—slowly and gently—changed into a kind of exercise that will bring, as its reward, the "bread" that shall be eaten by "the sweat of thy face."

ITS LABORS SHOULD BE REWARDED.

The child should be very early taught to do its little labors of love for its parents and friends, and to do it from the generous impulses of a kind heart; but until it is accustomed to labor, let it see, in a tangible shape that it can appreciate, some form of reward; and let this reward be sure "as the law of the Medes and Persians, which altereth not."

Let the child understand, that as an inevitable result of labor, well performed—just as it was directed to do it—the reward will come; and, also, let it understand that it will unavoidably fail if the labor is not performed, and performed well.

Habits of labor are more easily acquired in childhood; and when we add the stimulus of rewards, such habits are quickly incorporated into the "necessary act" of the body.

EXCESSIVE EXERCISE.

From the fact that some children are required to perform too hard tasks, there is a necessity for speaking of excessive exercise. It is sad to believe that there are unfeeling, avaricious

parents, who will compel little boys and girls to over-work—who will, without a twinge of conscience, wring dollars out of the flesh and blood of their own children; yes! robbing their boys of their manhood, and leaving them stiffened in body and shrunken in mind. This is not the labor of love. It is not the exercise that will develop. It is that which makes only machines of our children, acting by routine, or just as they are acted upon.

A SAD PICTURE.

Did you never see that little boy, stiffened in every joint—muscles too hard to be elastic? You know him by his walk ere he has come near enough to be distinguished by his features. You compare him to an old, stiffened work-horse. He is small in stature, and dwarfed in mind. He has only acquired a habit of work, and from waking to sleeping, he is "on the trudge." No joyous laugh in his soul! No responsive musical happiness there. The moment he has to himself he takes for rest to those weary muscles, many times older than his years. The very expression of his face tells us that he is far more aged in labor than in pleasure, in

sorrow than in joy. It also tells us that his mind is very small—a closed bud that can never obtain vitality enough to bloom.

All this from too much labor while growing, that not only wearies, but exhausts; and where followed up in the form of physical labor, or too much mental labor, will render any child a wreck. There are, in the aggregate, very many such cases, and they are a wrong to the child for which nothing can compensate.

HABITS OF LABOR — HOW ACQUIRED.

We would see the child, girl as well as boy, brought up with habits of labor, of regular labor, just so much every day, and that amount any way. No excuse except sickness. We would have these tasks gradually supercede the child's play, beginning as soon as he can do anything, and the rate of increase be so graded that they will not do full labor until fully grown — until fully matured in size, age, and development. And to this change from native play to labor we would have added the stimulus of rewards — rewards that shall be in a form to be understood and appreciated by the child. Let the young child understand that some toy,

wanted, cannot be had until earned; then, as he is a few steps further advanced, let him understand that some desired or needed article can be owned by him, when some slight labor is performed, and performed well.

This course will give the child some true idea, in a form he can appreciate, of the value of his food, his playthings, and his clothes, as he has labored for them. Any judicious parent can regulate these "labor tasks," at such a time that they will supply the needed exercise which the child has heretofore taken in the form of play, as Nature has called him to run, or jump, or to a more quiet exercise.

This is a "breaking in" of the untamed boy, from his wild natural play, to that labor which shall give him such habits as are needed to make him lay by for a "rainy day" stores that will keep the wheels of life moving when he cannot labor.

PRACTICAL MINUTIÆ.

Tell the little boy that he can have that bit of chewing gum he so much desires, when he has brought so many small baskets of chips for mother, and how readily he jumps with his lit-

tle basket to his labor, and soon — before you expected — he comes for his pay. Next time he wants his gum he will know how to get it. This course, followed up systematically, will soon develop, in the boy or girl, habits of labor instead of play, and by the time they are old enough for school, they just as much expect to do their alloted "chores," of an hour or two's time, as their father expects to do his daily labor.

As before said, children are not naturally lazy. They are by Nature very active, and it is the parents duty to turn this activity to the child's benefit, by forming it into habits of labor. Such habits of labor are as easily acquired as the habit of smoking or lounging; and when they are once acquired, become as thoroughly a part of the child's daily routine of life; and they will be as hard to break off from.

LAZINESS THE PARENTS' FAULT.

That every child is created for activity is shown in the anatomical and physiological adaptation of every part. The movable joint, the contracting muscle, the nervous unrest, all indicate that the child was made for motion; and it

will be ever on the move — on a progressive movement — onward and upward — in its development, unless it is trammelled by fetters that in some way bind the natural aspirations.

Are your children lazy? They were not so when they were first learning the activities of life. How they would trot and run all day long when they first began! It was motion every day in the year, and every hour in the day, through early life; only when they were asleep did they cease their activities; and you have often wondered how they could thus move. But now, when large enough to labor for you, they are not willing. They do not choose to leave their play for work, and you are compelled to think they are lazy. If they are, it is your fault; you did not commence early enough to teach them to change their habits of play for habits of labor; and now, when they are older, it is more difficult. We should begin, with systematic regularity, a gradual change; and by showing the young mind that there is a reward as sure to come as the labor is performed, and as sure to fail as the labor fails — we should faithfully work at our task of teaching industrial habits to the child.

By thus doing, we have, in a few months, formed habits of labor in a very young child, but never too young to acquire habits—habits that will follow him through a long life, making of him a man of good and regular, or poor, unsteady habits, according as he receives good or poor lessons and influences while yet a boy.

"Train up a child in the way he should go, and when he is old he will not depart from it."

HARD LABOR AT PUBERTY.

There are a few necessary words to be said of the amount of labor our children should perform at puberty. Because of the changes going on in the body at this time, all youths, for the year for this change, should have an easier time, physically and mentally, than at any period of life. They should then have the most nutritious food, an abundance of it, and plenty of sleep. Especially should the girls have this ease. Their exercise should be regular, but it should be light; never a task that will exhaust the girl, or even the boy—who can bear it better than the girl.

There is a labored change being made in their bodies that takes all the energies of their life at

this time, and they have not the strength to spend in the every-day task. Many boys have laid the foundation for ill health, by too hard labor at this important period of their lives. That labor which tries the strength of their backs is more especially injurious, and many men have complained all their lives, since the age of developing manhood, of "lame backs," caused by too much lifting at this trying age.

THE BUDDING WOMAN.

And the daughter, just budding into womanhood, she needs some care too—some looking after. She should be allowed to sleep as much as Nature requires; eat all the good food she can, at regular times; and be relieved from all hard or forced tasks, and from excessive pleasurable exercise. We do not say that they should not labor or exercise. We think they should, and do it systematically; but no hard, laborious effort should be required of them, nor should they be allowed them in the form of pleasure. They should never, at this period of life, do anything that will in any degree exhaust their muscular or nervous energy, or vitality. They want all this to carry on the developing

change that makes woman the most perfectly beautiful object in the world.

MEDICAL AID BEFORE PUBERTY.

We believe that if medical aid is wanted before puberty, to help growing humanity onward, the child's inheritance was not good, or the principles of Hygiene have been neglected. True, this is the most critical period of life, yet the watchful care of a mother, educated, as she should be, to care properly for her child before she assumes the responsibility of becoming a mother, will most generally prevent sickness — when the parentage is healthy.

SICK CHILDREN VS. SICK ANIMALS.

We ought to have sick children less frequently than we have sick domestic animals, since our knowledge is so much superior to their instinct, if we lived up to that knowledge. Ah! but most of our mothers know but very little what care they require when the first baby comes — too frequently — an unwelcome guest; and by the time they have learned they cease to have more.

NO HARD LABOR SOON AFTER EATING.

From the fact that the infant will eat and go immediately to sleep, we argue that the child should rest after eating; thus carrying out the instinct of the child. And not only should the infant sleep, or rest, after eating, but the nearly mature boy or girl, whose development, though nearly perfect in size, has not yet the firmness and solidity of maturity, should rest for an hour or two after taking a hearty meal. Digestion will take place more quickly, easily, and perfectly, and the food be of more real use to their physical systems.

We are sure not to work our horses hard when their stomachs are full from recently eating or drinking largely, but we choose to give them rest for an hour or two, to digest their food. We know that they will work better, do more, and wear longer, than when allowed to eat what they want, and then made to work while their digestive organs are at work upon the food.

THE ANIMAL RESTS IMMEDIATELY AFTER EATING.

If we have observed animals in their natural life, we have seen, after eating and drinking

what they wish, they immediately lie down and rest. Certain authors have claimed that man should sleep before he dines — should sleep when hungry. But they fail to give us a single example from Nature in which it is done; and in direct opposition to the instincts of animal life, to our own innate desire, and to scientific reasoning, direct us to sleep when hungry! All animal life is awake and active when in want of food, and usually sleepy after eating.

The child, after eating, is not so ready for play, but is inclined to sleep — is much more easily made to take his nap than at any other time.

THE CHILD NOT SLEEPY WHEN HUNGRY.

If we would believe in and obey the instinctive desires and tendencies which the great Lawgiver has given us, we would never say that man, woman, or child should sleep before dinner; but, as the child is so much inclined to do, sleep, or rest at least, after dinner, while all our energies are concentrated upon the conversion of food into blood.

DOING TWO THINGS AT ONCE.

We were not made to perform two laborious actions at once. We cannot use our bodies in hard labor and thoroughly digest a large dinner at the same time. If we do the work we will not digest the dinner well; and if we do digest the dinner, we will find that we have taken the work easily. We cannot eat a large meal of strong nutritious food, and then, while digesting it, perform deep mathematical problems, or study, understandingly, some scientific book. If we attempt it we shall find one, or both, imperfectly done, and ourselves completely unfitted for the succeeding duties of the day.

If the child has digested its food, it has not well learned the hard lesson it was studying while digesting its food. If the lesson is learned the food is undigested; the nutriment for supplying waste, and making the physical system good for the nervous work, is not ready; and the child is not able for the next day's study or labor.

Thus we see that the child should rest for an hour or two after eating; especially after dinner, the principal meal of the day, and particularly from all mental labor.

MENTAL EXERCISE.

Children should be encouraged to exercise the mind as they progress in years, but they should not be crowded to laborious mental application, and long hours of study. They have not learned how to use the brain, nor has the brain tissue become used to hard work. The effect of severe use of the brain, in deep and long-continued study, to those unused to it, would be like that upon a child unaccustomed to exercise, who should take a run of an hour or two.

The muscular soreness, and general debility that follows such a run, will illustrate the condition of the brain after long-continued, unaccustomed study. Excessive muscular labor for those unpracticed, is sure to leave its soreness and general debility. Brain labor of an unusual amount, for the young, who are not used to study, is equally injurious.

WHEN AND HOW TO STUDY HARD.

But when the brain has obtained the habit of thought, and the maturity of age, it may labor on and on, without injury, if it does not

interfere with any of the laws of supply and demand for the system. If we take sufficient exercise, food, sleep, and pure air — if we keep the person clean — and attend to all the calls of Nature promptly, we may study very hard, and never feel any worse for it, but rather much better.

Now, if the child is allowed time for all these, as his needs require, he is not likely to overstudy, unless crowded, or unless study is new to him. Novelty is very apt to lead the young into excess.

THE MIND AND BODY MUST GROW TOGETHER.

The mind and the body ought to be developed together — equally — neither one or the other receiving exclusive attention. We must exercise and develop the body as the instrument of the mind, for the activities of the mind cannot become powerful when it has only a feeble instrument by which to do its work.

The steam of the engine has wondrous power, but if the engine is imperfect and feeble it will not manifest that power. For all the good it will do us, it might as well have less power.

So with the mind. If it has not a strong body through which to manifest itself, its powers can never be of use to its fellow minds.

On the other hand, we must develop the mind with the body, for what is a body with no "steam power" of mind to guide and direct it in doing all that is required of it in this life; that the mind and body may thus be prepared for "the life which is to come."

MIND AND MATTER.

Develop mind and matter in the persons of your children equally, by giving the body its full amount of exercise, in the form of play, while young; and in the form of labor as soon as they are old enough; at the same time exercising the mind by answering the questions of the little one; and as soon as he grows older, not only answer and explain what he comes to you to learn, but teach him to rely upon self to the extent of his own mental powers.

REASON AND THE INSTINCTIVE.

While thus doing keep the reason as nearly in harmony with the instinctive as is possible; but when you are not able to harmonize them,

remember, as you are weakness, and He is strength, to yield your reason to the innate, as the finite should ever bow to the Infinite.

THE BEAUTY OF A VIGOROUS BRAIN AND A POWERFUL BODY.

What beauty there is in a large, strong, finely developed mind and body; gifted in harmonious unison with all the powers vouchsafed to finite beings! In such persons we find that power which not only controls themselves, but controls the church — controls the state — aye! controls the world of science, politics, and religion.

WHO GOVERN THE WORLD.

He who would be a leader for good in this world — a man of influence — must be healthy, active, and strong, both in mind and body, and must have learned self-reliance.

Much that makes a man great is inherent — received from the ancestry — yet much is done, by the right exercise of the mind and body, to develop what has been received as a heritage.

HOW WE FAIL TO DO THE BEST.

Though we cannot make a great man or woman of a child born of diseased parents—feeble in both mind and body—yet we may fail to make noble men and women of children born of the strongest physical parentage, and the inheritors of the most active brains; and often do fail through the child not having been subjected to good Hygienic influences, but allowed to grow up breathing impure air, eating impure, unhealthy food—with foulness all around it, and upon it, and subjecting it to too much or too little labor.

The want of this needful care has brought many children, born to be great, to an untimely end. They have been sickly and feeble, in mind and body, simply from want of Hygiene. On the contrary, Hygienic treatment has saved many children, with very poor heritage, and raised them to a manhood of influence and usefulness.

CHAPTER VIII.

Sleep.

WHAT IS SLEEP?

"Tir'd and thankful, let me rest—
Like a child that sleepeth best
On its gentle mother's breast."

ELLIOTT.

SLEEP is a necessity for all animal life, and it is said that some vegetables show something analogous to the repose of sleep. But as sleep does not effect the purely vegetative process of the animal, the vegetable that sleeps must have some life that is akin to animal life.

"Perfect sleep is characterized by a complete and profound unconsciousness of everything, even of existance—the senses are closed against all impressions; the limbs have become relaxed and inactive; even volition, in common with every other faculty of the mind, is in abeyance."

The consciousness does not respond to its natural stimuli; the eye does not respond to light, nor the ear to sound, nor the sense of touch to that which will immediately call the attention of the brain when it is awake.

THE BRAIN-POWER QUIESCENT.

Not only do the senses remain quiescent, but the brain does not act. It does not remember; it does not compare; it does not judge; it does not calculate; it does not imagine, or fancy; nor does it use any of the functions so active when awake, but it lies inactive and dormant.

THE VEGETATIVE FORCES ACTIVE.

But though all the animal functions are at rest while we are in profound sleep, the organic or vegetative processes are acting the same as when we are awake. The lungs act and we respire; the heart beats and the blood circulates; the food is being digested, and the lacteals are taking up the elements of nutrition and passing them into the blood; the excreting organs are throwing out the waste; in fact, every process that the animal has in common with the vegetable, goes on during sleep as well

as during wakefulness. But there is one process that is much more active during sleep than during wakefulness, which is taking the nutrition from the blood and converting it into a part of ourselves — construction; while destruction is the most rapid during our wakeful hours.

IT IS A REST FOR THE HIGHER ORDER OF LIFE.

Then sleep is a rest of all those phenomena that the animal manifests in distinction from the vegetable. It is a rest for the higher order of life, and is more a necessity for those beings of superior intelligence, and less a necessity for that order of beings nearest the vegetable. That brain which is being most rapidly developed, will need the most perfect sleep for the greatest number of hours, for it is then that the repair of the brain waste is made, and that growth progresses; and if the growth is large, or the labor has been great, more time must be taken for repair and growth.

SLEEP A LIFE-GIVING PROCESS.

Thus we see sleep is life-giving, by affording time for the repair and replacement of the worn out molecules of the body, and for animating

the new particles added to the body in growth. Without sleep the body would soon be worn out for the want of repairs, and the brain have no sound brain-cells to act in giving us thought, while the action of those unrepaired would soon be insane, so long as they were capable of acting at all.

SLEEP IS NOT ALWAYS PERFECT.

Perfect sleep has the unconsciousness just described; but it is a fact that we do not always sleep as soundly as the above description requires. Ofttimes some of the functions, either animal or intellectual, or both, are awake, and we dream. Children frequently dream, but we think that in health, with a perfect nervous equilibrium, they will not dream much, provided they are brought up agreeably to the laws of Hygiene.

SLEEP THE CONDITION OF THE FŒTUS.

The condition of the child previous to its birth may be likened to one of continued sleep, if it is not such in fact; as the animal life apparatus is so removed from all external influences that it is not aroused into a conscious activity

But the organic functions of life are acting with an energy shown at no other period of existence in constructing the fabric which is soon to emerge into an independent existence, that shall by degrees awake to a consciousness of its own being, and take cognizance of an external world with its objective life.

WE AWAKE THE FIRST TIME AT BIRTH.

At birth, it awakes for the first time; and dur- the first weeks after birth, the infant will continue to sleep the greater part of the time. In fact, it should be awake only long enough to receive its food, and the necessary care of dressing and cleanliness. The great amount of construction, which we call growth, in addition to the replacing of those atoms of tissue, worn out and expended in the forces of life, requires this greater quantity of time for its accomplishment.

SLEEP SHOULD BE COMPARED TO LIFE.

Sleep has usually been compared to death, and wakefulness to life. But when we look at the processes going on in the body, we will see that sleep is the life — the life-giving hour, during which we are converting the inanimate

nutrition derived from food into a part of ourselves — making it animate, giving it life. On the other hand, while we are awake, we are destroying a cell here, and a molecule there, that had life as a part of our body, but dies in adding to the forces of life.

SLEEP AND GROWTH.

This death of animated particles, used up in the forces of life, is much greater while we are awake than while we are asleep. True, assimilation is going on all the time while we are awake as well as when we are sleeping; but it is very much more rapid when we sleep — and true, the destructive waste is going on all the time, but much more rapidly during our wakeful hours of activity, when the animal or brain forces are busy. As growth becomes less rapid, we find less sleep required by the child as he advances towards maturity.

AMOUNT OF SLEEP REQUIRED.

The amount of sleep gradually diminishes, from twenty hours, soon after birth, to eighteen hours, at from six months to one year's age. From one year old to six or eight, the child

should sleep from ten to fifteen hours, after which to maturity, eight to ten hours should be used in sleep.

A mature man or woman ordinarily requires one-third of their time to be spent in sleep. As construction and destruction are about equal, time is required for repairs alone, none for growth.

OUR BODIES ARE EVER CHANGING.

These bodies are ever changing. Day after day they are not the same — not made of the identical particles of material they were the day previous. Not a limb of our body — not even a hair on the skin, or a piece of skin covering the body is the same to-day as yesterday. It has changed by giving up a part — perhaps never so small, and receiving new material in its place — material possessing that fresh vigor that makes us feel like new beings. This vigor we feel more especially in the morning, because in the night, while we were sleeping, this change was produced with a greater efficiency and the particles of matter worn-out by the forces of yesterday's life, that made us feel so tired, were removed and replaced by others

that had not been used up in the manufacture of the forces of life. And the child not only repairs the waste, but he accumulates a larger supply than he had the previous morning, which is called growth.

WHAT MAKES THE CHILD GROW.

Do not understand that it is the food we take into our stomachs that makes the growth or supplies the waste. It is only that part of this food that we digest; and then that part of what is digested, that is assimilated as a part of ourselves; that is taken up by the lacteals, carried to the blood, and with it passes to the various tissues of the body, as bone, muscle, gland, connective tissue, tendon, or brain, where each part, by a vital process, takes from the blood just those particles of digested food that it wants. This last is the process of repair and growth that is going on so much more rapidly when we sleep — the vital process of taking from the blood, and assimilating to our own tissue such of the nutrition that the blood has received from the food during its digestion, as is adapted to replace that atom, once of ourselves, that was used up in some part of the previous day's activities.

EVERY ORGAN HAS ITS TIME FOR REST.

Rest is as necessary for the well-being of every organ of the body as is exercise; and from this fact every part has its time for rest.

Did we say that the heart beats all the time, sleeping and waking? and that we breathe just the same when we sleep as when we are awake? This is all true; but though they do not leave work when we sleep, still they do have rest. The heart rests just one-third of the time, or all the time between the beats; and the lungs rest from one-fourth to one-third of the time, or all the time between the respirations.

THE BRAIN ONLY RESTS WHEN ASLEEP.

Every organ has its periods of rest intermingled with its work, when we are awake as well as when we are asleep, save only the brain. This organ never rests, except during sleep. When it is awake there is never a single moment but what it is active in some degree—thought is ever being originated through the destruction of brain-cells, though the thought may be weak and unimportant. Often when we are sleeping, part of the brain is awake and

at work, and we call it dreaming. Nearly every part of the brain may thus work while the organ is mostly sleeping. If all parts of the brain were to keep up this state of dreaming activity through the night, as well as its activity while awake, we should soon find that we had lost our brain power, and could not think. In fact, we would become maniacs, for the brain, like every other organ, must have rest, or it is worn out.

EVERY THOUGHT PRODUCES BRAIN WASTE.

When we consider that every thought involves a waste of brain substance; that every perception and every desire consumes a cell; that every act of memory—that every mandate of the will—every object seen by the eye—every sound heard by the ear—every motion of the body—and every emotion, whether it be painful or pleasurable, is accompanied, in fact is produced, by a destruction of brain tissue, and this every moment of our lives, sleeping or waking, which destruction must be reproduced or we will cease to be; and when we consider that repair is not as active during waking hours as the waste, we see why it is that sleeping is

so necessary. We can comprehend why the want of sleep will always lead to insanity, and why it is such an agonizing death to die from being deprived of sleep.

A CHINESE PUNISHMENT.

The Chinese punish some criminals by ordering them to be prevented from sleeping. In Dr. Forbes Winslow's Obscure Diseases of the Brain, we find the following account of the effect produced by this punishment:

"A Chinese merchant had been convicted of murdering his wife, and was sentenced to die by being deprived of sleep. This painful mode of death was carried into effect under the following circumstances: The condemned was placed in prison under the care of three of the police guard, who relieved each other every alternate hour, and who prevented the prisoner from falling asleep night or day. He thus lived nineteen days without enjoying any sleep. At the commencement of the eighth day his sufferings were so intense that he implored the authorities to grant him the blessed opportunity of being strangled, guillotined, burned to death, drowned, garroted, shot, quartered, blown up

with gun-powder, or put to death in any conceivable way their humanity or ferocity could invent. This will give a slight idea of the horrors of death from want of sleep."

If a great want of sleep will produce such effects, will not a less deprivation produce a proportionate result?

SLEEP A DAM ON THE RIVER OF LIFE.

Life may be compared to a machine-shop run by the water accumulated by a dam on a small river. The water in the pond may be compared to the vital power. It runs the mill part of the time, but at night it is run low. Sleep may be compared to the dam on the river, at the shop, where at night the water accumulates, and an additional supply of power is thus obtained. Now, the power of the river of life is not sufficient to run man's shop all the time, so we have sleep as a dam to accumulate power.

FORCE AND FUEL MUST BE EQUAL.

We can exert just as much power as we take fuel in the form of food, which we digest and assimilate into a part of our own bodies. From the fact that food is not assimilated as fast as

the wear of our bodies is progressing while we are awake, we have the allotted sleep, to arrest, in part, the progress of this wear, more particularly the wear of the brain, and give it a quiet time for repairs to be made, that the body may again exert its power for another day, and not become exhausted.

WHEN THE CHILD GROWS.

Dr. John C. Draper says: "Reparation of tissues takes place chiefly during sleep. In infancy and adolescence, when the body is growing rapidly, the greater portion of our time is spent in sleeping, so that the construction and increase of tissues may advance with as little interruption as possible. When the adult period is reached, the average amount of sleep is about eight hours in every twenty-four, though many people need only four or five, or even less. As old age approaches, and the recuperative powers of the system decline, a far greater amount of sleep is required."

THE CHILD HAS GROWTH AND WASTE TO SUPPLY.

In the child we have not only the waste of tissue, as at maturity, but we have the growth

to supply from the food. The child exercises all day at its play, and thus uses up much material, it being expended in force by the vitality and activities of life; and if the child is in health there is the supply to be provided for growth.

This same process of assimilating nutriment from the blood, to replace that which is destroyed by the forces of life, is going on in the growing child, to make it larger and more compact.

ASSIMILATION MOST RAPID WHILE WE SLEEP.

Day by day, or mostly night by night, while the volition is quiet in sleep, particle after particle is taken from the nutritive element of the blood and added to each bone, muscle, nerve, and gland, to the skin, hair, nails, and brain; and, like the coral reef, imperceptibly by a day's measure, but distinctly seen by a year's measure, the child grows; and this work of growth is mostly done during the child's sleeping hours. Here we see why the child requires so much more sleep than the person of mature years. The infant, growing the most rapidly, sleeps most; the child of two years less, and the older child still less,

until we come to maturity, when there is no growth to supply; only the necessary waste of the life machine, at which time one-fourth of the time will answer for many persons, though most need, and should take, one-third or even more.

"EARLY TO BED AND EARLY TO RISE" MOTTO.

Every person who sleeps as much as he needs will live longer than if he lessens the amount by sitting up late or by early rising. Children should sleep all they want to—should go to bed early, and not be called to rise in the morning until they are through with their sleep. "Early to bed" is a splendid motto. But the other half, that our mothers have preached to us, and our grandmothers have preached to them and to us, with so much earnestness, "early to rise," is good for grown people, when they retire early enough to get all the sleep they need in season for "early to rise," but we believe it is not right for children.

THE EARLY CHILD OFTEN GETS CAUGHT.

The boy was right, who, in answer to the father that said, "It was the early bird that caught the worm," replied that "It was the

early worm that got caught." There is many an early child that has got caught with a puny, weak constitution, who would have been much more robust if it could have slept two hours more in the morning, every morning until it was ten years old. They would have assimilated more of the nutrition obtained from their food, and thus more thoroughly replaced the waste, making the development better; and they would have added to the body more particles of material which would have increased the stature. Want of sleep does not so often injure the size as it does the firmness of the tissues—the solidity, the compactness.

THIS IS NOT TEACHING INDOLENCE.

Do you say that we are teaching indolence? In answer we say, that healthy children are not in any danger of being too indolent. When they have sleep enough they are "up and at it." We do not have to urge them to get up, but they are more ready than they will be, if, for a few weeks, they are called out an hour or two before their sleep is finished. Curtailing their sleep will soon make them lazy, by destroying their energy.

THE CHILD SHOULD SLEEP ALL IT WANTS.

If you have a healthy child, it will sleep, and sleep a long time, sweetly and soundly. The infant wants sleep all night, and the young infant most of the day; and if they are healthy they will take it, and when awake will be cheerful. As they grow older they need less, as we said before; but we think the after-dinner nap should be taken every day, until the child has passed a number of the years of his youth. It will make them more certain of a good, solid, healthful development. The repairs and the construction will be more permanent, firm, and yet elastic; and of a character capable of evolving more force.

WHERE THE INFANT SHOULD SLEEP.

The little infant should sleep on or near its mother's breast when it is weary or restless, as there it has an instinctive feeling that it is at home—there it is more likely to be quiet and content—"There it sleepeth best."

There the child finds a nervous sympathy, a power of motherly vitality over the child's vitality, that, unexplained, soothes and quiets it—

and there it will sooner fall asleep. No person can care for the child—other things being any way near equal—as well as the mother; and when tired, weary, and worn with an infant's troubles, the mother can soonest soothe it to rest.

MOTHERS SHOULD NOT SHRINK FROM DUTY.

Oh mothers! never shrink from your responsibilities—never leave to another that which you can do so much better. If you are not as well prepared for these duties as you ought to be, and have, even unwittingly, been the cause of a life, strive hard to learn all in your power to make the child healthy and strong, as then it will be happy.

CAUSES THAT PRODUCE SLEEP.

The necessities for sleep having been noticed, now we would look for some of the causes that produce sleep.

OBSERVE THE SOFT SPOT ON THE CHILD'S HEAD.

On the top of the young child's head is a spot that the bone does not cover. This is largest at birth, growing smaller until it is entirely closed

at about two years old. You know it is caused by an incompleteness of the bones of the cranium. It is usually called "the soft spot," in family parlance.

HOW IT IS WHEN AWAKE.

Is your baby awake, and as usual, active with kicks and strikes? Observe the "soft spot," and you see it is level with the rest of the surface of the head, or very nearly so. Your hand hardly feels an elevation or a depression.

HOW IT IS WHEN SLEEPING.

But when the child is sleeping naturally, pass your hand on the *fontanelle*, as doctors call it, and you feel a depression which your eye can see distinctly.

WHY IT IS THUS.

This is caused by there being less blood in the brain when sleeping than when awake. The blood is not needed there when it is at rest in sleep, as it is when at work. The principle is the same as in the hand or arm; when they are exercising there is more blood carried to them than when at rest.

THE BRAIN THE AUTOCRAT.

When awake the brain is ever at work—not a moment but it is busy, either giving directions for the care and preservation of the body, or at work intellectually. The flow of blood toward the brain is increased in proportion to the amount of labor being performed, making it the autocrat upon the throne of man's individuality.

But when sleep overtakes it, the activity is gone, and the surplus blood flows from the brain to other organs, as the digestive and assimilative, or the general abdominal viscera. This flow of blood from the brain is what makes the "soft spot" on the infant's head lower during sleep than the cranial surface; there is not as much blood in the brain as when awake. The fact is proven beyond the possibility of a doubt, by the many experiments made by Dr. Wm. A. Hammond.

THE IMMEDIATE CAUSE OF SLEEP.

Now, this reduction of the quantity of blood in the brain is the immediate cause of sleep; a point to be remembered when the baby, or the grown person, does not sleep well.

We understand, then, that in the healthy child, when it is weary, and its sleeping time is come, the blood does not determine to the brain, but from it, toward the organs that prepare materials for the repair of the waste, and for the growth of the body. We understand that in poor, irregular sleep, this reduction of the blood in the brain is less than when sleep is good; and we further understand, that when there is no lessening of the blood in the brain, there is no sleep.

THE ORDER OF FALLING ASLEEP.

When we fall asleep, the senses usually lose their power in the following order: First the sense of sight is gone; next the sense of taste is quieted; the sense of smell next; the hearing next; and, last of all, the sense of touch. In waking, this order is usually reversed; the first sense aroused being the touch. But this rule has many exceptions.

PARTIAL SLEEP.

There are states in sleep in which the action of the organs of sense upon the brain or mind, and its reaction on them, varies from this usual

course. Thus the nurse at the sick-bed may sleep in every sense but hearing; that being awake more particularly to the patient whom she is watching than to any other sound.

A noise may occur in another room, or even in the room in which she is, and not be noticed; yet the least movement of the patient will arouse her quickly. The sleep of the mother with her infant is of the same kind. The miller sleeps while his mill is at work, but wakes immediately when it stops. The wearied soldier may sleep while on the march in every ability except walking.

Now, this kind of sleep, with a wakefulness of a part of the brain powers, is analogous to dreaming, and will, to a certain degree, illustrate it.

IN DREAMING, THE BRAIN POWERS NOT ALL ASLEEP.

In dreaming, some of the faculties of the mind are awake. The whole brain power may be asleep except the imagination, or the memory and the imagination; and as the judgment and will-power are considered to be asleep if any part is, these wakeful faculties run on, in dreaming, without law or rule; there being no sys-

tematic arrangement. This is why we have so much that is unnatural and wonderful in almost all dreams. The state of the brain, when we are dreaming, is between the waking and the sleeping state; that is, some part of the brain is more largely supplied with blood, and it is this part that is at work. There may sometimes be a general increase of blood above the sleeping state, but it never becomes equal to that of full wakefulness. When this increase is general there will be a misty dream, more like the realities of day-time.

IN DREAMS WE ORIGINATE NOTHING.

We originate nothing in our dreams from the brain powers; we only remember, and this we do in a most irregular manner—uniting things very remote, and often very ludicrous, and separating others that our wakeful hours would soon tell us must go together.

Man never dreams of that of which he never had any thought or knowledge.

The Europeans never dreamed of the North American Indians, until they were discovered; nor did the discoverers dream of there being such personages until they had thought of find-

ing them. The man who never heard of a telegraph, or a railroad, or a steamboat, never dreamed of one. Our dreams are dependent upon our previous thoughts, and only occur when there is an increase of the amount of blood in some part of the brain, above the normal amount for sleep.

THE OLD IDEA OF THE IMMEDIATE CAUSE OF SLEEP.

We ought to say here, that the reduction of the amount of blood in the brain during sleep, is a somewhat new opinion, the old one being, that there was more blood in the brain during sleep than when awake, and that this increased amount of blood, by producing pressure, was the cause of sleep.

But the experiments of scientists — more especially of Arthur E. Durham and Wm. A. Hammond, M.D. — have shown conclusively the old error; and that there is less blood in the brain during sleep than during wakefulness. When a state resembling sleep is produced by the pressure of blood, it is not sleep, but a stupor, from which it is very difficult, if not impossible, to arouse the subject.

THE MEDIATE CAUSES OF SLEEP.

But let us look for some of the mediate causes of sleep. Anything that will reduce the amount of blood in the brain, will produce sleep; and everything that tends to keep up the full supply of blood, or to increase it, will cause wakefulness.

Thus the excitement of the mind by fear, anger, or on the other hand by pleasure, in fact or in anticipation, will keep the eyes of the child open wide, so long as it is deeply interested. Deep mental study will keep the mature mind from repose; and as soon as the blood of the brain is in the least reduced, we cannot study with any profit.

HEAT A MEDIATE CAUSE OF SLEEP.

Among the causes that reduce the circulation of the brain, we would notice heat. All know that great warmth will oppress with drowsiness, by bringing the blood largely to the surface of the body, thereby reducing it in the brain.

COLD A MEDIATE CAUSE OF SLEEP.

Long-continued cold will do the same. But at first, cold produces wakefulness, by driving the blood away from the surface; yet, if continued, it irritates the surface, and draws the blood outward. A very common time of being very sleepy, is when we get warm after being out in the cold for a long time, as riding for a few hours. Then the blood comes rushing out to the surface of the body, making the skin very red, and sleep is overpowering.

DIGESTION A MEDIATE CAUSE OF SLEEP.

Digestion is another means for bringing blood from the brain, and producing sleep. All know that a hearty dinner is a great soporific, and all know that the surest way to get the infant to sleep, is to give him his fill of food.

Upon this subject, Dr. Hammond says: "Digestion leads to sleep by drawing upon the brain for a portion of its blood. It is for this reason that we feel sleepy after the ingestion of a hearty dinner. A lady of my acquaintance is obliged to sleep a little after each meal. The desire to do so is irresistible; her face becomes

pale, her extremities cold, and she sinks into a quiet slumber, which lasts fifteen or twenty minutes. In this lady the amount of blood is not sufficient for the due performance of all the operations of the economy. The digestive organs imperatively require an increased quantity, and the flow takes place from the brain; it being the organ with her which can best spare this fluid.

LARGE EATERS LARGE SLEEPERS.

"As a rule, persons who eat largely, and have good digestive powers, sleep a great deal, and many persons are unable to sleep at night until they have eaten a substantial supper. The lower animals generally sleep after feeding, especially if the meal has been large. While it is an error to suppose, as is generally done, that a moderately full meal, eaten shortly before bed-time, is necessarily productive of wakefulness, there is no doubt that this condition is induced by an excessive quantity of irritating or indigestible food. A hearty supper of plainly cooked and nutritious food rather predisposes to sleep. Most of us have experienced the drowsiness which so often follows dinner.

WHY DIGESTION CAUSES SLEEP.

"This is due to the fact that the process of digestion requires an increased amount of blood in the organs which perform it, and consequently the brain receives a less quantity. A tendency to sleep is therefore induced. It is a natural and healthy predisposition, and yielded to in moderation conduces to a more complete assimilation of the food than would otherwise take place.

INDIGESTION PREVENTS SLEEP.

"When, however, the food ingested is not merely sufficient for the wants of the system, but is inordinate in amount, or irritating in quality, the hypnotic effect is nutralized, and often a state of wakefulness supervenes, from the fact that the quantity of blood circulating in the brain is augmented instead of being diminished. This last result is induced either by the pressure of the over-loaded stomach upon the abdominal vessels, or through a reflex action on the heart, by which it is excited to increased activity.

EFFECT OF FOOD UPON THE SLEEP OF YOUNG CHILDREN.

"In young children, who are very susceptible to the influence of causes acting upon the nervous system, we often see both sleep and wakefulness result as direct effects of eating. When the quantity of milk taken has not been excessive, the child quietly drops to sleep at the breast. On the contrary, when a superabundance has been ingested, it either remains awake or the sleep is disturbed. In adults it is, as has already been mentioned, not uncommon for apoplexy to ensue upon a large meal of improper food.

WAKEFULNESS AND THE DIET.

"In order, therefore, that the disposition to wakefulness may be removed, it is essential that attention should be paid to the diet of the affected individual. As a rule, people are underfed. This is especially the case with women, who too generally indulge in what may be termed "slops," to the exclusion of good, solid, nutritious food derived in part from the animal kingdom. By such a faulty diet, the tone of the

system is lowered, and local congestions of different parts of the body are produced. If the brain is one of these wakefulness results."

CHILDREN EASILY AFFECTED BY THIS DIET.

Children are very easily affected by those influences that act upon the stomach, and we often see either sleep or wakefulness result from food, or the want of it. An excessive amount at one time will keep from sleep; and, on the other hand, hunger will keep away sleep. When children should sleep, the rule ought to be to give them a moderate amount of plain food, if they have passed the nursing age; if not, they should nurse what they want. Yet the nursing infant and the child should have the regular hour both for food and sleep. The digestion of a moderate and plain meal of food will certainly assist the infant and child to sleep.

But overloading the stomach will as certainly obstruct the flow of blood from the brain, and thus cause an increase of the amount of blood in the brain, thereby preventing sleep; and when there is a very large increase, it may, and often does, produce stupor, from which it is very difficult to arouse the child.

LATE SUPPERS.

Shall children eat at night, just before they go to bed? This is a question that should be answered so as to be understood. It is a question that affects the health of the child.

Now, there are certain conditions upon which an answer rests. If the child is not hungry it certainly should not eat. If it is hungry it certainly should not eat unhealthy food — indigestible food, such as cakes, condiments, and rich pastry. If it is hungry it should not eat all it can, thus gorging itself to stupidity. Nor should children eat unhealthy food at any time, nor too much plain food; but, above all, they should not eat it to sleep upon. If they do, their sleep will be a troubled, dreamy sleep, or a stupor, from which it will be almost impossible to arouse them.

Under these restrictions, we think the child can just as safely eat before sleeping as at any time. As these restrictions all apply to the child when not wishing sleep; that is, as it should never eat unhealthy food, and never over-eat, whether wishing sleep or wakefulness; it may just as well eat and lie down in sleep as

to eat at any other time. With plain food, at frequent regular hours, the child will not overeat, unless tempted with some favorite dish, not eaten for a long time.

NOW WE SEE WHY.

Now, we can see, from the fact that the digestion of food calls an extra amount of blood to the stomach for its digestion, and from the fact that it relieves the brain of a surplus, which reduction is necessary for sleep, that giving the child, who has an appetite for it, a small quantity of plain food, as the infant nurses, will help to make it sleep—that it is one of Nature's ways of causing sleep. We further know, that it is the instinctive desire of every child to sleep after eating. And we still further know, that animals, especially all young, growing animals, will sleep after satisfying their appetites, and never sleep when hungry.

Do we not see an argument here in favor of eating, reasonably, before sleeping?

TOO MUCH AND TOO RICH FOOD BEFORE SLEEPING.

While there is such an argument, and though we think it very sound, we feel it is best to say,

that from this argument we should not take the liberty of feeding our children heartily from our suppers, usually made up of very unhealthy food for young people, and often not partaken of until an hour of the evening when young children should be asleep; and still further, we should not feed them pastry and food rich in condiments to sleep upon, for the reason that they are injurious as a direct irritation to the child's stomach and bowels, which irritation is the producer of wakefulness and disease.

A NIGHT OF "NIGHTMARE AND HOBGOBLINS."

It is not proper food, or the digestion of food, that produces a sleepless night — a night of "nightmare and hobgoblins" — but it is the irritation of indigestible food. If it were the digestion of food, the infant would not rest well after nursing, and every mother knows that is the time it sleeps best. If it is the digestion of food that keeps up wakefulness, why is it that the animal will sleep after eating, and almost never sleep when its stomach is empty? No, it is not digestion that keeps the child from sleep — that gives the man the nightmare — it is the irritation produced by *indigestion* of quantities

and substances that should never be admitted to the stomach.

TO AVOID A SLEEPLESS NIGHT FOR THE CHILD.

Then, if you would have your child avoid a restless night, you should not put or send it to bed hungry; nor should you feed it food that no stomach should take for supper, even if it is allowable for dinner, nor should you feed it a large amount. But you should feed it moderately, on plain food, if it is hungry.

Then will digestion assist sleep by deriving blood for its use from the brain, and assimilation will be thorough, and the child will grow and develop into a perfect humanity.

Let us change the cry against late suppers to a cry against *bad* suppers.

SOOTHING TENDS TO PRODUCE SLEEP.

From the fact that excitement will keep up an increased circulation in the brain, all that will soothe the child will have a tendency to produce sleep, as soothing will reduce the excitement, when the brain will be relieved of a part of its blood; and this will indirectly put the child to sleep. This is the explanation of all of

those every-day family measures to get the baby to sleep — such as monotonous movements or sounds; soft, even frictions to the body, and singing of lullabys of much sameness of sound. These are usually very efficient in ordinary cases.

PHYSICAL EXERCISE TENDS TO PRODUCE SLEEP.

When *insomnia* is very persistent, other measures should be taken, and one of the most beneficial is the fatigue that follows good exercise; and we believe no child will sleep well who is deprived of what active exercise it wants. As said in the chapter on exercise, let them play, run, and jump, then lie down and sleep; and give them all the sleep and exercise they want, only using caution when some new form of exercise is used.

MORE EFFECTIVE MEASURES TO PRODUCE SLEEP — WARM BATH TO THE BODY, AND COLD TO THE HEAD.

But we will suppose that you have a healthy child, who does not sleep well — an unnatural supposition — and we would suggest how to make it sleep, for we know it will soon be

good for nothing unless it sleeps well. It will become irritable and cross, and lose its strength of body and mind. If the usual quiet, the usual rockings, pattings, and singings will not cause it to sleep, we would give it a bath of some 95° warmth, and keep the whole of the child's body in it, except the head, which should be wet with cold water. It should be used from five to ten minutes. The warm water brings the blood more profusely to the surface of the body, while the cold water tends to drive the blood from the head; and as soon as the blood in the brain becomes reduced below the usual amount of the wakeful state, the child will sleep. As soon as the child is taken from the bath it should be wiped dry, and then rocked to sleep in its accustomed way. Do not use the bath and then allow the child to play for any time, but immediately attend to getting it to sleep. If the child—or grown person—will not sleep after such a bath, it is sick, and needs the advice of a physician.

HOT FOOT BATH AND COLD TO THE HEAD.

The hot foot bath of some 100° in temperature, and cold water on the head, will produce

the same effect on a smaller scale. It will often so reduce the circulation in the brain as to produce immediate sleep. The use of cold on the head, and warmth on the feet, is a very sensible way of getting sleep at night, for those grown people who usually go to bed with cold feet and hot heads, to lie awake until the head is cool and the feet are warm. Never put a child to bed with cold feet, as you value your child's health. And grown people will add years to their lives, if they will remember this rule, and practice it.

SLEEPLESSNESS AND BRAIN POWER.

From Dr. Hammond's work upon sleep we quote what he has quoted from Dr. Ray's book on Mental Hygiene, as very expressive of the effect of the want of sleep:

"A periodical renewal of the nervous energies, as often as once a day, is an institution of Nature, none the less necessary to the well-being of the animal economy, because in some degree under the control of the will. To disregard its requirements with impunity, is no more possible than it is to violate any other organic law with impunity; and no man need flatter himself that

he may systematically encroach upon the hours usually devoted to rest, and still retain the freshness and elasticity of his faculties. With the same kindliness that marks all the arrangements of the animal economy, this condition is attended with many pleasing sensations and salutary effects, gently alluring us to seek the renovation it offers. 'While I am asleep,' says the immortal Sancho Panza, 'I have neither fear nor hope; neither trouble nor glory; and blessings on him who invented sleep—the mantle that covers all human thoughts; the food that appeases hunger; the drink that quenches thirst; the fire that warms; the cold that moderates heat; and, lastly, the genuine coin that purchases all things; the balance and weight that makes the shepherd equal to the king, and the simple to the wise.'

"The ill effects of insufficient sleep may be witnessed on some of the principal organic functions, but it is the brain and nervous system that suffer chiefly in the first instance. The consequences of a too protracted vigil are too well known to be mistaken, and many a person is suffering, unconscious of the cause, from the habit of irregular and insufficient sleep. One

of the most common effects is a degree of nervous irritability and peevishness, which even the happiest self-discipline can scarcely control. That bouyancy of the feelings, that cheerful, hopeful, trusting temper, that springs far more from organic conditions than from mature and definite convictions, give way to a spirit of dissatisfaction and dejection; while the even demeanor, the measured activity, are replaced, either by a lassitude that renders any exertion painful, or an impatience and restlessness not very conductive to happiness. Upon the intellectual powers the mischief is still more serious. They not only lose that healthy activity which combines and regulates their movements in the happiest manner, but they are no longer capable of movements once perfectly easy. The conceptions cease to be clear and well defined; the power of endurance is weakened; inward preceptions are confounded with outward unhappiness, and illusory images obtrude themselves unbidden upon the mind. This kind of disturbance may pass, sooner or later, into actual insanity, and many a noble spirit has been utterly prostrated by habitual loss of rest."

WANT OF SLEEP WORSE ON THE CHILD THAN ON THE MAN.

If such is the effect of the want of sleep upon man, mature in life, what must it be upon the child who is growing—still immature—whose bodily powers are, as yet, not compact and solid, and whose brain is affected by everything that is capable of leaving an impress upon it?

LITTLE SLEEP, LITTLE CHEERFULNESS.

Does your child sleep too little? Then it is irritable, peevish, and cross. All day long it is a trouble to you because of its worry. Everything its play-fellows do is wrong, and almost everything you do is wrong, and does not suit the child. It wants this, and when it has it, it wants it no more, but wants that, to reject it as soon as it is received. It wants to go here and there, only to tease you for a new—something. Restless and uneasy; ever on the move; never to be pleased with the movement.

THE CROSS, IRRITABLE CHILD SHOULD SLEEP MORE.

Such a child needs sleep to quiet and repair those over-strained brain fibres and cells, that

have been on the strain so long that they are already in a tremor that may give place to a state of wild insanity.

The brain wastes more rapidly than any other portion of the system, because it works more, being the executive that attends to the carrying out of the laws of the body, as well as the legislator of its orders; keeping the accounts, and paying off the creditors, both in the supply and scavenger departments. Therefore it must have time for the repairs which are mostly made while the child is sleeping. Then, if you would have your child pleasant, cheerful, and happy under all circumstances, and always satisfied with what you have for it, you must be sure it sleeps all it needs — be sure it goes to bed early, and that it is not called until it wakes up voluntarily. Should it wake too early, ere it has slept enough, soothe it to sleep again; do not take it up, or make it get up, or even allow it to get up, until it has slept its full quota.

LITTLE SLEEP, LITTLE BRAIN POWER.

Among the first symptoms of insanity is an inability to sleep, and one of the important causes is a deprivation from sleep. This applies

to all the ages, from infancy to old age. But short of insanity, the want of sleep will tend to dwarf the brain, preventing the child from exerting that mental power that he might if he had slept more, and from becoming a man of as much intellectual ability as he would have possessed had the brain been allowed time to grow and repair its waste by removing all the worn-out rubbish, and doing up its scavenger work.

GREAT BRAIN LABOR REQUIRES MOST SLEEP.

As the child grows older he is not only learning by observation, and by quizzing everybody who will answer his questions, but he goes to school, and there studies lessons that are far harder, according to his capacity, than the problems that most of us think very difficult for our minds. More brain force is now expended than was used prior to attending school, and thus the brain is more wearied, and wastes more rapidly, which again calls for more time in sleep to remove the waste and reinvigorate the brain. Then the school-boy, using the brain much, must sleep more than the boy who is only using his muscle.

THE SLEEP OF "BOARDING-SCHOOL" STUDENTS.

It is the custom, in some of our boarding-schools, to call the pupils up too early in the morning, and the young people of these schools are not willing to retire to sleep as early as they should; thus they get too little rest. The forward student, who has over-worked the brain —been full of mental activity—is soon found with a flushed face, a hot head, throbbing temples, and cold feet; at first he would not sleep, now he cannot. After spending many sleepless nights, restless and weary, with perhaps an aching head, he finds it impossible to concentrate his thoughts upon a lesson, or even upon anything, and is taken home sick—sick in mind as well as body.

TOO LITTLE SLEEP UNSETTLES THE STUDENT.

It was not the hard, close study that injured him, or that will injure any one, but it was the want of the rest the brain needed—the rest only obtained from "Nature's sweet restorer."

It is not the day's toil over the book, with the attention never so concentrated, but it is the "midnight oil" that unsettles the studious stu-

dent. It is, in short, plain words, too little sleep.

SLEEP AND PUBERTY.

Then, again, these studious days often come while the change we call puberty is taking place in the child; while they are being made over from boys and girls to men and women. These are the years when the bodily powers are in constant effort to rear and develop the superstructure of manhood or womanhood; and, save the years of infancy, they should receive the greatest care, and require the most sleep. The greatest amount of labor, both physical and mental, is then being performed in our bodies; and where the most labor is accomplished, there the most rest is required. If the equilibrium between labor and rest is not preserved; if the body does not receive in proportion to what it gives, it will sometime rebel.

The forces of life cannot exceed the material used in the manufacture of force, and the amount and quality of material used will be in direct proportion to the time taken for its use.

The mature life may cut short its sleeping hours with much more safety than the child,

who is all undeveloped, and yet developing so fast, both in brain and in muscular force. But the mature will suffer, if they persist in reducing the amount of sleep they should take.

THOSE WHO SLEEP LESS THAN USUALLY NEEDED.

There are those who will do with much less sleep than the average of mankind must have. They are of the kind who do everything quickly, and thus they sleep fast — doing up more of it in an hour than others do in an hour and one-half. We must not take such exceptions as the rule for our guidance, but must follow that as the rule which satisfies the majority — which one will follow when he does not try to reason away the instinctive.

THOSE WHO SLEEP MORE THAN USUALLY NEEDED.

On the other side, we find those who require twice the common amount of sleep. We can find grown persons who will sleep fifteen or sixteen hours out of every twenty-four; and we can find stupid, sleepy youths, that are almost asleep all the time, and quite asleep the moment they are still. These cases are exceptions, and should have no weight in our conclusions upon

what is the "greatest good for the greatest number."

SLEEPING IN NIGHT-CLOTHES.

In the chapter upon cleanliness, we spoke of changing the clothes worn during the day for others to sleep in, as a measure of neatness. As a means of producing good, refreshing sleep, it is also very much to be commended, and should be always followed. Never put a child to bed without first changing all his clothes, washing his body clean with pure water, and giving him fresh, sweet, night-clothes, as pure as pure water can make them. These had better be of only one garment, which should be loose. Then the child will sleep much more soundly, and its sleep will do it much more good. It is truly bad enough for grown persons to sleep, and work, or try to study, in the same under-clothes. We should always treat our children better than we do ourselves, for they cannot bear poor care as well.

SLEEPING WITH OLD PEOPLE AND SICK PEOPLE.

Children should not sleep with old people; but alone, or with those of their own age. Nor

should they sleep with those enfeebled with disease, either acute or chronic — as consumptives — even when the disease is not yet sufficiently developed to weaken the patient. There is a draft upon the child's vitality, when in close contact with those enfeebled, that is better known from observation than explained by science.

FOLLOW THE INSTINCTIVE.

Then let us follow the instinct of our children, by allowing them to sleep as much as they are inclined, and not cry against their taking a late supper when they are hungry, but always cry out against the quality, when it is composed of what cooks call "rich food." Of plain food, then, we may give them just as freely when they are going to sleep soon as when they have just awakened.

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